A CRITICAL COMPARATIVE STUDY ON THE FORMULATION OF THE SOUTH AFRICAN HEALTH PROMOTION LEVY TO ACHIEVE ITS POLICY OBJECTIVES

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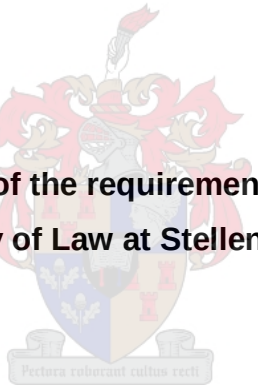

Thesis presented in fulfilment of the requirements for the degree of Master of Laws in the Faculty of Law at Stellenbosch University

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DECEMBER 2020

DECLARATION

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Date: 25 November 2019

SUMMARY

The prevalence of obesity and obesity-related non-communicable diseases has increased significantly over recent decades, and South Africa is currently experiencing an obesity epidemic. In addition to causing millions of deaths globally, these health issues impose a large burden on public healthcare in low- and middle-income countries particularly, and reduce overall productivity. The World Health Organisation ("WHO") has recognized the need for government intervention in this context, and has identified fiscal measures as a potentially useful tool in obesity-prevention efforts. There are a number of factors that contribute to the relevant health concerns, including the increased affordability of unhealthy foods and beverages. The rationale for taxes on sugar-sweetened beverages or other unhealthy foods is that they lead to increased costs and thereby make unhealthy diets less affordable, which could lead to health improvements. In this context, a tax on certain sugar-sweetened beverages has been implemented in South Africa since 1 April 2018, titled the "Health Promotion Levy" ("HPL").

While the link between dietary risk factors and particularly excessive sugar consumption has been well-established, the extent to which such fiscal measures effectively reduce sugar consumption and lead to health outcomes is less evident. Further, the WHO has stressed that fiscal measures need to form part of a broader policy framework in order to emphasize health outcomes. This thesis briefly discusses a number of these other interventions in the broader policy framework, and comments on the development of such interventions in South Africa. Although a number of jurisdictions have implemented fiscal measures to pursue health objectives, the appropriateness of taxes on sugar-sweetened beverages has been criticised. While taxes are predominantly used for revenue generation, they could also be used specifically to discourage certain behaviour, to enhance economic growth, and for the redistribution of wealth.

With reference to various criticisms of fiscal interventions, this thesis compares the formulation of the HPL with those of similar taxes implemented in Denmark, Hungary, Mexico, the United Kingdom and the United States of America. With reference to this comparative study, it is critically considered whether the current formulation of the HPL is consistent with its stated objectives. The success of fiscal

measures to reduce consumption is considered alongside their potentially undesirable effects on overall dietary quality as well as other policy objectives of economic growth and redistributive goals. Lastly, this thesis offers suggestions on how the formulation of the HPL could be amended, and how the development of other interventions should be used to ensure sustainability for the HPL, and to strengthen its health objective.

OPSOMMING

Die voorkoms van vetsug en vetsugverwante nie-oordraagbare siektes het die afgelope dekades aansienlik toegeneem. Suid-Afrika ervaar tans 'n vetsug-epidemie. Hierdie gesondheidskwessies veroorsaak jaarliks wêreldwyd miljoene sterftes. Hierdie gesondheidskwessies lê veral 'n groot las op openbare gesondheidsorg in lande met lae en middelinkomste, en verminder produktiwiteit. Die Wêreldgesondheidsorganisasie het erken dat die regering se ingryping nodig is om hierdie gesondheidskwessies aan te spreek. In hierdie konteks is fiskale maatreëls geïdentifiseer as 'n potensieel nuttige hulpmiddel in die regering se pogings om die voorkoms van vetsug en vetsugverwante nie-oordraagbare siektes te verminder. Daar is 'n aantal faktore wat bydra tot die betrokke gesondheidskwessies, insluitend die verhoogde bekostigbaarheid van ongesonde kosprodukte en suikerversooetekoeldranke. Die rede vir belasting op suiker-versoete drankies en ander ongesonde voedselprodukte is dat dit die koste sal verhoog en sodoende ongesonde diëte minder bekostigbaar sal maak. Op hierdie manier word dit gerasionaliseer dat fiskale maatreëls die voedingsgehalte verbeter en tot gesondheidsverbeterings lei. In hierdie konteks word 'n belasting op sekere suiker-versoete drank sedert 1 April 2018 in Suid-Afrika geïmplementeer, met die titel "Belasting op Suikerversoetekoeldranke."

Die verband tussen ongesonde diëte en oormatige suikerverbruik is vasgestel, maar die mate waarin fiskale maatreëls die suikerverbruik verminder en die gesondheidsuitkomste verbeter, is minder duidelik. Die Wêreldgesondheidsorganisasie het verder benadruk dat sulke belastings gepaard moet gaan met ander ingrypings om gesondheidsverbeterings te bevorder. Hierdie tesis bespreek kortliks 'n aantal van hierdie ander intervensies en lewer kommentaar op die ontwikkeling van hierdie intervensies in Suid-Afrika. ‘n Aantal jurisdiksies het fiskale maatreëls ingestel om gesondheidsdoelwitte na te streef, maar dit is gekritiseer. Belasting word hoofsaaklik gebruik vir inkomstegenerering, maar dit kan ook gebruik word om sekere gedrag te ontmoedig, ekonomiese groei te bevorder en om die verdeling van welvaart te bevorder.

Hierdie tesis vergelyk die formulering van die Belasting op Suikerversoetekoeldranke met dié van soortgelyke belasting wat in Denemarke, Hongarye, Mexiko, die

Verenigde Koninkryk en die Verenigde State van Amerika geïmplementeer is. Met verwysing na hierdie vergelykende studie, word in hierdie tesis krities gekyk of die huidige formulering van die Belasting op Suikerversoetekoeldranke in ooreenstemming is met die gestelde doelstellings. Die sukses van fiskale maatreëls om verbruik te verminder, word beskou sowel as die moontlike ongewenste uitwerking op die algehele dieetkwaliteit, en ander beleidsdoelstellings vir ekonomiese groei en herverdelingsdoelwitte. Laastens bied hierdie tesis voorstelle oor hoe die formulering van die Belasting op Suikerversoetekoeldranke gewysig kan word, en hoe die ontwikkeling van ander intervensies aangewend moet word om beide die volhoubaarheid van die Belasting op Suikerversoetekoeldranke te verseker en om die gesondheidsdoelwit daarvan te versterk.

A WORD OF THANKS

I am thankful to mentor and supervisor, Mr Oosthuizen for your guidance, and particularly for your patience and ongoing support and understanding. I am also thankful to Dr Mills and Dr Jansen Van Rensburg for your wisdom and input on the *ad hoc* committee.

To my family, René, Arnold and Christopher Maritz and Joan Parkin, thank you for your support and patience with me over the last year. Dad, thank you for always being an inspiration with your work ethic, and for all the sacrifices you make for us. Thank you for helping me with this opportunity to study further, both academically and in other pursuits.

I am so grateful for the ongoing encouragement from my friends. Thank you, Caitlin for your sense of humour, kindness and constant support. Michelle, Megan, Chad, Mike and Lynette, thank you for encouraging me to focus when it was needed, and for distracting me when it was needed.

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ASA	South African Advertising Standards Authority
ASB	Artificially-Sweetened Beverage
BMI	Body Mass Index
CSPI	Centre for Science in the Public Interest
CVD	Cardiovascular Disease
DAS	Duty-At-Source
DI	*Dansk Industri*
DK	Denmark
DKK	Danish Kroner
EDNP	Energy-Dense, Nutrient-Poor
EU	European Union
FAO	Food and Agriculture Organisation
FBDG	Food-Based Dietary Guidelines
FDA	Food and Drug Administration
FNS	Food and Nutrition Service
FOP	Front-Of-Package
FSE	Food Service Establishment
GDA	Guideline Daily Amount
GDP	Gross Domestic Product
GST	Goods and Services Tax
HIF	Health Insurance Fund
HIV	Human Immunodeficiency Virus
HFCS	High Fructose Corn Syrup
HM	Her Majesty
HPL	Health Promotion Levy
HSRC	Human Sciences Research Council
HUF	Hungarian Forint
IHD	Ischemic Heart Disease
ILAC	International Laboratory Accreditation Co-Operation
IRR	South African Institute of Race Relations
LMIC	Low- and Middle-Income Countries
MXN	Mexican Peso

NCD	Non-Communicable Disease
NDOH	National Department of Health
NHLBI	National Heart, Lung, and Blood Institute
NIH	National Institutes of Health
NIHD	National Institute for Health Development
NHI	National Health Insurance
NPM	Nutrient Profiling Model
NRI	Nutrient Reference Intake
NRV	Nutrient Reference Value
NYC	New York City
OECD	Organisation for Economic Co-Operation and Development
OOP	Out-Of-Pocket
PBT	Philadelphia Beverage Tax
PHC	Public Health Council
PHE	Public Health England
PHPT	Public Health Product Tax
RAF	Road Accident Fund
RSA	Republic of South Africa
SACU	Southern African Customs Union
SANAS	South African National Accreditation System
SANHANES	South African National Health and Nutrition Examination Survey
SARS	South African Revenue Service
SDIL	Soft Drink Industry Levy
SNAP	Supplemental Nutrition Assistance Programme
SSB	Sugar-Sweetened Beverage
SSBPT	Sugar-Sweetened Beverage Product Tax
TFA	Trans-Fatty Acid
THB	Thai Baht
T2DM	Type 2 Diabetes Mellitus
UK	United Kingdom
UK DH	United Kingdom Department of Health
USA	United States of America
USDA	United States Department of Agriculture
VAT	Value-Added Tax

WCRF	World Cancer Research Fund
WHO	World Health Organisation
WTO	World Trade Organisation
ZAR	South African Rand

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CHAPTER 1: INTRODUCTION

1 1 Problem identification

1 1 1 Increasing burden of obesity and non-communicable diseases

The World Health Organisation ("WHO") reports that obesity has almost tripled worldwide since 1975, and it is estimated that around 50% of the world's adult population will be overweight or obese by the year 2030.[1] Obesity is increasingly becoming an issue for low- and middle-income countries ("LMICs"), and South Africa is currently experiencing an obesity epidemic.[2] Studies have shown that, in 2003, 27,4% of South African females and 7,5% of South African males were obese.[3] According to statistics from 2014, South Africa's obesity prevalence has increased to 13% for adult males, and to 42% for adult females.[4] South Africa is presently considered to be the most obese nation in sub-Saharan Africa, with over 50% of the adult population being overweight.[5] Of further concern is the increasing prevalence of childhood obesity, as research indicates that obese children are likely to remain obese throughout their lives. In addition to early onset obesity, poor dietary habits in childhood could lead to various obesity-related diseases. These medical issues require chronic care over the span of these children's lifetimes, and increase long-term public healthcare costs.[6]

Obesity and overweight are defined as medical conditions involving the excessive or abnormal accumulation of body fat.[7] The degrees of these conditions are

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[1] WHO "Obesity and Overweight" (01-02-2018) *WHO* <http://www.who.int/mediacentre/factsheets/fs311/en/> (accessed 12-02-2018); T Kelly, W Yang, CS Chen, J Reynolds & J He "Global burden of obesity in 2005 and projections to 2030" (2008) 32 *IJO* 1431 1435. Kelly et al project that the prevalence of overweight and obesity could be as high as 57,8% of the world's adult population by 2030, chompared to the 33,0% recorded in 2005.

[2] WHO "Obesity and Overweight" *WHO;* N Stacey, A Tugendhaft & K Hofman "Sugary beverage taxation in South Africa: Household expenditure, demand system elasticities, and policy implications" (2017) 105 *Prev. Med.* S26 S26.

[3] RSA NDOH, Medical Research Council, OrcMacro *South Africa Demographic and Health Survey 2003* (2007) 276-277.

[4] M Ng, T Fleming, M Robinson, B Thomson, N Graetz & E Gakidou "Global, regional and national prevalence of overweight and obesity in children and adults 1980-2013: A systematic analysis" (2014) 384 *Lancet* 766 766.

[5] 797.

[6] RSA National Treasury *Taxation of Sugar-Sweetened Beverages Policy Paper* (2016) 6-8; WHO "Obesity and Overweight" *WHO.*

[7] Mayo Clinic "Obesity" (10-06-2015) *Mayo Clinic* <https://www.mayoclinic.org/diseases-conditions/obesity/symptoms-causes/syc-20375742> (accessed 12-02-2018); WHO "Obesity and Overweight" *WHO.*

measured in terms of the Body Mass Index ("BMI"), which is defined as a ratio of an individual's weight in kilograms, to the square of their height in metres ("kg/m^2").[8] The classifications for BMI for adults are as follows: a "normal" weight BMI value is between 18,5 and 24,9kg/m^2; an "overweight" BMI value is between 25 and 29,9kg/m^2; and an "obese" BMI value is over 30kg/m^2.[9] There is a positive relationship between BMI levels and the risk of developing certain non-communicable diseases ("NCDs"), including: type 2 diabetes mellitus ("T2DM"); osteoarthritis; gall bladder disease; stroke; gout; chronic kidney disease; and a number of heart diseases, including coronary heart disease, heart failure, and atrial fibrillation.[10] The prevalence of these NCDs is increasing along with obesity prevalence, and it has been estimated that the number of deaths attributable to high BMIs almost doubled during the period 1990 to 2017.[11] NCDs are responsible for around 36 million deaths each year, which represents around 63% of all annual deaths.[12]

Around 86% of these NCD-related deaths occur in LMICs, where: the prevalence of malnutrition and infectious diseases is also high; and the increasing prevalence of

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[8] RSA NDOH *Strategy for Prevention and Control of Obesity in South Africa 2015 – 2020* (2015) 15. Apart from BMI, abdominal obesity is an indicator of body fat and the risk of developing obesity-related NCDs. There is a high risk for developing obesity-related NCDs where waist circumference exceeds 88cm for women and 102cm for men, and a moderate risk where waist circumference exceeds 80cm for women and 94cm for men.

[9] G Bray "Obesity in adults: etiology and natural history" (08-02-2018) *UpToDate* <https://www-uptodate-com.ez.sun.ac.za/contents/obesity-in-adults-etiology-and-natural-history?search=bray%20obesity%20adults&source=search_result&selectedTitle=7~150&usage_type=default&display_rank=7> (accessed 21-05-2018); NIH NHLBI *Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults: The Evidence Report* NIH Publication No. 98-4083 (1998) xi; WHO "Obesity and Overweight" *WHO.* Different guidelines are used for children, where age and the WHO Child Growth Standards median are taken into consideration.

[10] A Must, J Spadano, E Coakley, A Field, G Colditz & W Dietz "The Disease Burden Associated with Overweight and Obesity" (1999) 282 *JAMA* 1523 1523-1526; H Kramer, A Luke, A Bidani, G Cao, R Cooper & D McGee "Obesity and Prevalent and Incident CKD: The Hypertension Detection and Follow-Up Program" (2005) 46 *AJKD* 587 591; L Perreault "Overweight and obesity in adults: Health consequences" (13-02-2018) *UpToDate* <https://www-uptodate-com.ez.sun.ac.za/contents/overweight-and-obesity-in-adults-health-consequences?topicRef=5375&source=see_link> (accessed 28-05-2018). Overweight and obese individuals have also been shown to be at a relatively higher risk for numerous types of cancers, and a number of medical conditions, including hypertension, venous thrombosis and reproductive problems.

[11] Ng et al (2014) *Lancet* 767; GBD Compare Viz Hub "All causes Both sexes, All ages" (19-11-2017) *Viz Hub* <https://vizhub.healthdata.org/gbd-compare/> (accessed 19-05-2019); GBD Compare Viz Hub "High body-mass index Both sexes, All ages" (19-11-2017) *Viz Hub* <https://vizhub.healthdata.org/gbd-compare/> (accessed 19-05-2019).

[12] WHO *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020* (2013) 1.

obesity has been described as a pandemic.[13] These issues place a large amount of strain on healthcare systems, and have been described as the "double burden" of disease.[14] For example, South Africa's healthcare system is already constrained by the high prevalence of HIV/AIDS and the chronic nature of certain NCDs places further strain on this system.[15] Along with decreased life expectancy and direct costs of government healthcare expenditure, these health concerns decrease overall productivity, because obese individuals are likely to use more sick days and to retire at younger ages.[16] This is an impediment to social and economic development, particularly in LMICs. Further, because obesity is more prevalent among lower socio-economic groups, the rapid rise in obesity exacerbates existing social inequalities.[17]

NCDs are most frequently caused by modifiable behavioural risk factors, such as smoking, alcohol consumption, unhealthy diets and physical inactivity. Certain dietary risk factors and obesity are both separate risk factors for developing certain NCDs, and certain dietary risk factors are risk factors for obesity itself.[18] It has been established by medical research that the cause of weight gain is the consumption of energy that exceeds the expenditure of energy.[19] Weight loss and thus the maintenance of a normal BMI can be achieved by: increasing physical activity; and reducing energy consumption through following a healthy diet.[20] While the consensus on the "healthiness" of certain foods is constantly shifting, medical research indicates that a healthy diet generally comprises of a balance of:

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[13] B Popkin, L Adair & S Ng "Now and Then: The Global Nutrition Transition: The Pandemic of Obesity in Developing Countries" (2012) 70 *Nutr Rev*. 3 3; WHO *Global Action Plan* 1.

[14] FAO *The double burden of malnutrition: Case studies from six developing countries* FAO Food and Nutrition Paper 84 (2006) 1. The "double burden" of disease is described as where: there is already a high prevalence of communicable diseases; and the prevalence of NCDs is increasing.

[15] Stacey et al (2017) *Prev. Med.* S26.

[16] WHO *Global Action Plan* 10; K Van Nuys, D Globe, D Ng-Mak, H Cheung, J Sullivan & D Goldman "The Association between Employee Obesity and Employer Costs: Evidence from a Panel of U.S. Employers" (2014) 28 *AJHP* 277 278; RSA National Treasury *Policy Paper* 4.

[17] Popkin et al (2012) *Nutr Rev.* 3; WHO *Global Action Plan* 1.

[18] GBD 2017 Risk Factor Collaborators "Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017" (2018) 392 *Lancet* 1923 1948-1954; WHO *Guideline: Sugars intake for adults and children* (2015) 1.

[19] Bray "Obesity in adults: etiology and natural history" *UpToDate*; T Heise, S Katikireddi, F Pega, G Gartlehner, C Fenton, U Griebler, I Sommer, M Pfinder & S Lhachimi "Taxation of sugar-sweetened beverages for reducing their consumption and preventing obesity or other adverse health outcomes (Protocol)" (2016) *CDSR* 1 2. Although there are a number of factors that contribute to weight gain, excessive energy consumption and inadequate physical activity have been identified as the two largest drivers for the global increase in the prevalence of obesity.

[20] G Colditz "Healthy diet in adults" (16-07-2018) *UpToDate* <https://www.uptodate.com/contents/healthy-diet-in-adults> (accessed 21-09-2018).

macronutrients, which are carbohydrates, proteins and fats; and micronutrients, which are various vitamins and minerals.[21] More specifically, a healthy diet has been shown to be relatively high in whole grains, nuts, fruits, vegetables and legumes, and relatively low in sodium, saturated fat, trans fatty acids ("TFAs") and free sugars.[22]

The WHO describes "free sugars" as mono and disaccharides "added to foods and drinks by the manufacturer, cook or consumer."[23] Intrinsic or natural sugars are described as the sugars that "form an integral part of certain unprocessed foodstuffs, the most important being whole fruit and vegetables, that are enclosed in the cell... and... are always accompanied by other nutrients."[24] In addition to mono and disaccharides, the "sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates" are considered "added sugars," when they are added to foods and beverages.[25] If free sugars comprise a large portion of an individual's diet, it becomes more difficult for individuals to meet their macronutrient and micronutrient needs, without exceeding their total energy requirements and thereby gaining weight.[26]

1 1 2 Rationale for government intervention to address health concerns

Sugar-sweetened beverage ("SSB") consumption has been "identified as a major contributing factor" to free sugar consumption and the relevant health issues. The health rationale for government interventions targeting SSB consumption specifically are summarized as follows:

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[21] WHO "Healthy diet" (14-09-2015) *WHO* <http://www.who.int/en/news-room/fact-sheets/detail/healthy-diet> (accessed 05-06-2018); Colditz "Healthy diet in adults" *UpToDate*.

[22] Colditz "Healthy diet in adults" *UpToDate*; WHO *Guideline: Sugars intake* 3. According to the WHO, a healthy diet comprises less than 30% of total energy intake from fat, and less than 10% has been shown to reduce the risk of developing a number of NCDs. Further, the consumption of unsaturated fats is preferable to saturated fats, and the consumption of TFAs should be limited to less than 1% of total energy intake. In order to reduce the risk of certain heart diseases and stroke, a healthy diet should include at least 3,5g potassium per day, and no more than 2000mg sodium per day. Lastly, individuals should consume a minimum of 5 servings of fruits or vegetables each day, because there is an inverse relationship between the consumption of fruits and vegetables, and the risk of certain preventable diseases.

[23] WHO *Taxes on sugary drinks: Why do it?* (2017) 1. Monosaccharides include glucose and fructose, and disaccharides include "sucrose or table sugar."

[24] Reg 1 of GN R 146 in *GG* 32975 of 01-03-2010.

[25] WHO *Taxes on sugary drinks* 1; Reg 1 of GN R 146 in *GG* 32975 of 01-03-2010. In terms of South African regulations, "added sugars" are defined as sugars "added to foods during processing," including "honey, molasses, sucrose with added molasses, coloured sugar, fruit juice concentrate, deflavoured and/or dionised fruit juice and concentrates thereof, high-fructose corn syrup and malt or any other syrup of various origins."

[26] D Mozaffarian, T Hao, E Rimm, W Willet & F Hu "Changes in Diet and Lifestyle and Long-Term Weight Gain in Women and Men" (2011) 364 *NEJM* 2392 2392; WHO *Guideline: Sugars intake* 3.

> "Increased consumption of free sugars, particularly in the form of sugary beverages, is associated with weight gain in both children and adults. Liquid sugar is absorbed quickly by the body and sugary beverages have no nutritional value. After consumption of a sugary drink, the blood sugar spikes and mass insulin is secreted to drop sugar levels which fall rapidly, and sugar gets converted into fat in the liver. Sugary beverages are linked to obesity and the onset of type 2 diabetes and metabolic syndrome... Volumes of sugary beverages consumed are high and on the rise, and do not provide the same feeling of fullness that solid food provides. There is extensive scientific evidence supporting the contribution of sugary beverages to obesity, NCDs and oral health... The World Health Organization... has recommended the intake of free sugars to less than 10 per cent of total energy intake... for weight management and other health benefits including dental caries. It also indicated that a further reduction to less than 5 per cent of total energy intake may further minimize the risk of dental caries throughout the life course... Evidence suggests that reducing sugar intake, especially in the form of sugary beverages, may help maintain a healthy body weight and possibly reduce the risk of overweight and obesity in adults."[27]

A number of factors contribute to poor diets, but the increased affordability of unhealthy foods and beverages is arguably one of the most significant causes.[28] The dietary changes responsible for the increasing prevalence of obesity and NCDs are largely induced by societal and environmental changes, to which there has been inadequate government reaction. In order to halt the growth of these health concerns, the WHO provides: that policy action may be required in a number of sectors; and that a "whole of society" life course approach is required, which includes the introduction of a comprehensive range of carefully-formulated policy measures.[29] Among other publications, the WHO describes certain prevention and control policies in the *WHO Global Strategy on Diet, Physical Activity and Health* ("*Global Strategy*"),[30] the *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020* ("*Global Action Plan*"),[31] and the *Report of the Commission on Ending Childhood Obesity* ("*Commission on Ending Childhood*

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[27] RSA National Treasury & SARS *Final Response Document on the 2017 Rates and Monetary Amounts and Amendment of Revenue Laws Bill – Health Promotion Levy* (2017) 5; WHO *Guideline: Sugars intake* 3. The WHO recommends that sugar should not comprise more than 10% of total daily energy intake, and that an intake representing less than 5% has additional health benefits.

[28] WHO *Report of the Commission on Ending Childhood Obesity* (2016) 17; EU Igumbor, D Sanders, TR Puoane, L Tsolekile, C Schwarz, C Purdy, R Swart, S Durao & C Hawkes ""Big Food," the Consumer Food Environment, Health, and the Policy Response in South Africa" (2012) 9 *PLoS Med* 1 1.

[29] WHO "Obesity and Overweight" *WHO*; WHO *Global Action Plan* 66; WHO *Commission on Ending Childhood Obesity* 10 & 14. The relevant sectors include health, environment, agriculture, food processing, food distribution, education and marketing.

[30] WHO *Global Strategy on Diet, Physical Activity and Health* (2004).

[31] WHO *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020* (2013) 1-102.

Obesity").[32] The measures recommended by the WHO can be classified into two, broad categories: measures aimed at modifying the market environment; and measures aimed at encouraging informed choices.[33]

The consumer food environment comprises of: the food information environment, in which interventions are aimed at equipping consumers with the necessary knowledge and skills to make informed, healthy dietary choices; and the food market environment, in which interventions are aimed at encouraging or compelling various actors in the food industry to limit the acceptability, affordability and availability of unhealthy foods and non-alcoholic beverages.[34] Government interventions in the consumer food environment are thus aimed at decreasing the acceptability, affordability and availability of unhealthy foods and beverages, with the ultimate objective of reducing dietary risk factors for obesity and obesity-related NCDs. The WHO provides that the starting point for interventions aimed at improving the consumer food environment should be the advancement of nutritional information in the form of evidence-based dietary guidelines.[35] Further recommended measures include: nutrition education policies; nutrition labelling regulations; public marketing campaigns; marketing regulations; and fiscal policies, including taxes on sugary drinks.[36] The WHO defines "sugary drinks" as "beverages containing free sugars," including "carbonated or non-carbonated soft drinks, fruit/vegetable juices... liquid and powder concentrates, flavoured water, energy and sports drinks, ready-to-drink tea, ready-to-drink coffee, and flavoured milk drinks."[37] Among others, a tax on SSBs is an example of an intervention aimed at influencing the food market environment through decreasing the affordability of the targeted unhealthy products. Alemanno and Carreño describe a tax on unhealthy food as:

> "... a tax or surcharge placed upon fattening foods or beverages on individuals with the aim to decrease consumption of foods that are linked to obesity and other health-related risks... some theorists, starting with Arthur Pigou, a 20th-century English economist... have long presented the arguments for imposing special taxes on goods and services whose prices do not reflect the true social cost of their consumption.

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[32] WHO *Report of the Commission on Ending Childhood Obesity* (2016) 1-50.
[33] J Brambila-Macias, B Shankar, S Capacci, M Mazzocchi, F Perez-Cueto, W Verbeke & W Traill "Policy interventions to promote healthy eating: A review of what works, what does not, and what is promising" (2011) 32 *FNB* 365 369.
[34] C Hawkes & F Sassi "Improving the quality of nutrition" in D McDaid, F Sassi & S Merkur (eds) *Promoting Health, Preventing Disease The Economic Case* (2015) 135 140.
[35] WHO *Population-based approaches to Childhood Obesity Prevention* (2012) 27.
[36] WHO *Global Action Plan* 32-33.
[37] WHO *Taxes on sugary drinks* 1.

> Examples of Pigouvian taxes are duties on cigarettes, alcohol, gambling and environmental emissions."[38]

Externalities arise where an individual or entity engages in an activity that has consequences on other parties, and those consequences are not reflected in the market price of the activity. In terms of Pigouvian theory, taxes should be imposed on market activities that cause externalities, and these taxes should be set at the rate of the relevant external costs.[39] Consumers should have the freedom to make their own consumption decisions, but government intervention may be justified where a market failure exists.[40] Market failures manifest as externalities or information failures.[41] Information failures occur where consumers do not fully appreciate the costs associated with their consumption. It is therefore rationalised that government intervention is justified where: unhealthy diets have become more affordable, and the prices of obesity-causing foods do not account for the environmental and social costs of obesity and obesity-related NCDs; and consumers lack awareness on these costs associated with the consumption certain foods.[42] Additionally, by imposing a tax on an unhealthy item, the relative price of healthy food options will be decreased in comparison to the price of unhealthy options. In this way, it is rationalised that healthier diets become relatively more affordable than unhealthy diets.[43] It has further been reasoned that the revenue generated from these taxes could reinforce health outcomes by funding certain health promotion programmes.[44]

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[38] A Alemanno & I Carreño "'Fat taxes' in Europe – A Legal and Policy Analysis under EU and WTO Law" (2013) 2 *EFFL* 97 97.

[39] R Mann "Controlling the environmental costs of obesity" (2017) 47 *Environmental Law* 695 718.

[40] W Viscusi "Principles of Cigarette Taxation" in S Cnossen (ed) *Excise Tax Policy and Administration in Southern African Countries* (2006) 61 77. If consumers believe that the consumption will enhance their welfare, then these choices are potentially efficient, provided that consumers are aware of the costs associated with their consumption.

[41] S Cnossen "Introduction" in S Cnossen (ed) *Excise Tax Policy and Administration in Southern African Countries* 1 15.

[42] J Benade & MF Essop "Introduction of "Sugar Tax" in South Africa: Placebo or panacea to curb the onset of cardio-metabolic diseases?" (2017) 14 *SA Heart* 148 148; K Brownell, T Farley, W Willet, B Popkin, F Chaloupka, J Thompson & D Ludwig "The Public Health and Economic Benefits of Taxing Sugar-Sweetened Beverages" (2009) 361 *NEJM* 1599 1601.

[43] RSA National Treasury *Policy Paper* 10.

[44] R Sturm, LM Powell, JF Chriqui & FJ Chaloupka "Soda Taxes, Soft Drink Consumption, And Children's Body Mass Index" (2010) 29 *Health Aff* 10521057; MW Long, SL Gortmaker, ZJ Ward, SC Resch, ML Moodie, G Sacks, BA Swinburn, RC Carter & YC Wang "Cost Effectiveness of a Sugar-Sweetened Beverage Excise Tax in the U.S." (2015) 49 *AJPM* 112 116; M Jerrett "Taxing Sugar-Sweetened Beverages to Combat the Costs of Obesity: City-Level Taxes and How the Federal Government Should Complement Them" (2018) 73 *FDLJ* 465 479.

1 1 3 Government intervention in South Africa

1 1 3 1 Policy context and formulation of the Health Promotion Levy

The National Department of Health ("NDOH") has recognised the negative effects of obesity and NCDs, and has identified certain prevention strategies in the *Strategic Plan for the Prevention and Control of Non-Communicable Diseases* ("*Strategic Plan*")[45] and the *Strategy for the Prevention and Control of Obesity in South Africa* ("*Strategy*").[46] The *Strategy* is aligned with the WHO's *Global Strategy,* and has set a target of reducing the rate of obesity in South Africa by 10% by the year 2020.[47] Following assessments done by OECD and WHO, the *Strategy* observed that fiscal measures will be the most cost-effective intervention to deal with obesity and NCDs in South Africa.[48] During the 2016 Budget Speech, the Minister of Finance announced that a tax on SSBs would be introduced, and this was confirmed in February 2017.[49] The Health Promotion Levy ("HPL") was inserted into the Customs and Excise Act 91 of 1964 ("Customs and Excise Act")[50] in terms of the Rates and Monetary Amounts and Amendment of Revenue Laws Act 14 of 2017 ("Rates and Monetary Amounts and Amendment of Revenue Laws Act"). This amendment was assented to and signed by the President on 14 December 2017, and the HPL came into effect on 1 April 2018.[51] The Customs and Excise Act provides for the HPL in Part 7A of Schedule 1.[52]

The HPL is payable on a list of specified products ("HPL products"), including: chocolate and cocoa beverages; syrups and concentrates for making beverages; drinking straws that contain flavouring preparations; waters that contain added sugar or other sweetening matter; and certain non-alcoholic beers.[53] HPL is levied at the rate of 2,21 cents per gram of sugar in these products above a tax-free sugar

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[45] RSA NDOH *Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2013-17* (2013) 1-80.
[46] RSA NDOH *Strategy for Prevention and Control of Obesity in South Africa 2015 – 2020* (2015) 1-40.
[47] 5.
[48] 28.
[49] RSA National Treasury *2017 Budget Speech: Pravin Gordhan, Minister of Finance* (2017) 12-16.
[50] S1(1)(d) of the Customs and Excise Act.
[51] S14(1)-(2) of the Rates and Monetary Amounts and Amendment of Revenue Laws Act.
[52] S17.
[53] Part 7A of Schedule No. 1 of the Customs and Excise Act Kindly refer to Annex A of this thesis "Products subject to the Health Promotion Levy" for a full list of HPL products.

content threshold of 4 grams per 100 millilitres.[54] The Duty-At-Source ("DAS") principle is applicable to the HPL: imported HPL products are subject to the levy once they have been cleared for home consumption; and locally-manufactured HPL products are subject to the levy at the source of manufacture. It was expected that manufacturers and importers would readjust their prices in line with the tax, and thereby pass through the tax burden to consumers. Such a response would be in line with the objective of reducing excessive sugar consumption, obesity, T2DM and other related diseases, through reducing consumers' demand as a result of increased prices.[55]

By taxing these beverages according to their sugar content, it provides incentive for consumers to substitute consumption of SSBs towards less sugary beverages, because their prices should become relatively cheaper as a result of the tax. Further, it has been rationalised that the use of the tax-free threshold provides incentive for producers to reformulate their products to contain less sugar, which is in line with the overall health objectives. If HPL products are reformulated to contain less sugar and are not subject to the tax, then the consumption of these beverages might not decrease as anticipated, but the decreased sugar content would result in reduced energy intake.[56] The *Taxation of Sugar Sweetened Beverages Policy Paper* ("*Policy Paper*")[57] provides that beverages containing only intrinsic sugars should be excluded from the HPL, because it is the added sugars in SSBs that have negative health effects.[58] Accordingly, 100% fruit and vegetable juices and unsweetened milk and milk products are not subject to the HPL.[59] However, the "sugar" content for purposes of the HPL means the total sugar content, including intrinsic sugar, added sugar and "other sweetening matter."[60] Therefore, where sugar is added to any of the would-be exempt products, and the total sugar content in the final product exceeds the tax-free threshold, these products are taxed according to their total sugar content, and no distinction is made between their intrinsic sugar and added

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[54] Part 7A of Schedule No. 1 of the Customs and Excise Act. From 1 April 2018 to 1 April 2019, HPL was levied at the rate of 2,1c/g sugar exceeding 4g/100ml in HPL products.
[55] RSA National Treasury *Policy Paper* 15; SARS "FAQs For Sugary Beverages Levy" (01-04-2018) *SARS* <https://www.sars.gov.za/ClientSegments/Customs-Excise/Excise/Pages/FAQs-for-Sugary-Beverages-Levy.aspx> (accessed 20-05-2019).
[56] RSA National Treasury & SARS *Final Response Document* 8; Stacey et al (2017) *Prev. Med.* S29.
[57] RSA National Treasury *Taxation of Sugar-Sweetened Beverages Policy Paper* (2016) 1-19.
[58] 3.
[59] RSA National Treasury & SARS *Final Response Document* 6.
[60] Note 4 to Part 7A of Schedule No. 1 of the Customs and Excise Act.

sugar contents.[61] This provision is similar to the description used for purposes of the WHO Regional Office for Europe *Nutrient Profile Model,*[62] which provides that the "total sugar content" of the relevant products is comprised of:

> "...intrinsic sugars incorporated within the structure of intact fruit and vegetables; sugars from milk (lactose and galactose); and all additional monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and fruit juices."[63]

In the case of "ready-to-drink" HPL products, the sugar content is calculated according to "the sugar content as certified on a test report obtained and retained from a testing laboratory accredited with and using methodology recognised by the South African National Accreditation System (SANAS) or the International Laboratory Accreditation Cooperation (ILAC)."[64] Sugar content for syrups and concentrates is also calculated according to such a test report, according to the "total volume of the prepared beverage when mixed or diluted according to the manufacturer's product specifications; and the average sugar content as certified on such a test report of the sugar content for all the prepared beverage options when mixed or diluted according to the manufacturer's multiple product specifications."[65] In the absence of a satisfactory label or report, the sugar content is deemed to be 20 grams per 100 millilitres for: ready-to-drink HPL products; and syrups and concentrates, calculated according to a dilution "ratio of one to nine parts water."[66] This provision for deemed sugar content is intended to provide an incentive to manufacturers to comply with labelling guidelines, because 20 grams of sugar per 100 millilitres is above the average sugar content in ready-to-drink SSBs.[67]

1 1 3 2 Criticisms of taxes on sugar-sweetened beverages

The *Policy Paper* provides: that SSB taxes are globally recognised as appropriate, cost-effective measures to address the issues of obesity and NCDs; and that Denmark, Hungary, Mexico, Finland, France, Ireland, Mauritius and Norway have implemented successful SSB taxes to reduce consumption and pursue health

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[61] RSA National Treasury & SARS *Final Response Document* 7.
[62] WHO Regional Office for Europe *Nutrient Profile Model* (2015) 1-6.
[63] 4.
[64] Note 5(a) to Part 7A of Schedule No. 1 of the Customs and Excise Act.
[65] Note 6(a)-(b).
[66] Notes 5(b) and 6(c).
[67] RSA National Treasury & SARS *Final Response Document* 9; RSA National Treasury *Policy Paper* 3.

outcomes.[68] As of May 2019, 42 countries and eight local jurisdictions within the United States of America ("USA") had implemented sugary drinks taxes.[69] However, these taxes are controversial, and their success in other jurisdictions is not uncontested. Further, because the majority of SSB taxes adopted in other jurisdictions have been implemented relatively recently, it is difficult to ascertain the efficacy of this type of intervention.[70] Nevertheless, the controversial nature of these taxes and the debate prompted by their introduction raises a number of interesting arguments that merit further consideration.

While proponents advocate that an SSB tax is an essential measure in governments' efforts to curb obesity, [71] others are of the opinion that these taxes: will neither improve health issues nor generate additional revenue for public healthcare; are regressive in nature; and have considerable economic consequences, including job losses and reduced Gross Domestic Product ("GDP").[72] Some argue that the HPL will not be effective, because such fiscal measures have failed to adequately change consumption in other jurisdictions.[73] Importantly for this thesis, some authors argue that a number of aspects of formulation of these taxes will determine their success in achieving health objectives.[74] Many taxpayers are sceptical of the policy objectives provided for HPL, and doubt exists as to whether this tax has been appropriately formulated in order to achieve these policy objectives. On 15

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[68] RSA National Treasury *Policy Paper* 3.

[69] Global Food Research Programme University of North Carolina *Sugary drink taxes around the world* (2019) 1-2. These include Bahrain, Barbados, Belgium, Bermuda, Brunei, Chile, Colombia, Cook Islands, Dominica, Estonia, Fiji, Finland, France, French Polynesia, Hungary, India, Ireland, Kiribati, Latvia, Malaysia, Maldives, Mauritius, Mexico, Morocco, Nauru, Norway, Palau, Peru, Philippines, Portugal, Qatar, Samoa, Saudi Arabia, Spain (Catalonia), South Africa, Sri Lanka, St Helena, Thailand, Tonga, United Arab Emirates, United Kingdom and Vanuatu. Within the USA, these include Albany, CA, Berkeley, CA, Boulder, CO, Navajo Nation, Oakland, CA, Philadelphia, PA, San Francisco, CA, and Seattle, WA.

[70] Ecorys *Food taxes and their impact on competitiveness in the agri-food sector: Final Report* (2014) 46.

[71] Brownell et al (2009) *NEJM* 1606; M Du, A Tugendhaft, A Erzse & KJ Hofman "Sugar-Sweetened Beverage Taxes: Industry Response Tactics" (2018) 91 *YJBM* 185 186.

[72] Long et al (2015) *AJPM* 121; N Seedat & D Singh *Is sugar tax likely to succeed in its objective of curbing obesity in South Africa?* unpublished paper presented at the 2017 Southern African Accounting Association Biennial International Conference Proceedings at Champagne Sports Resort, Drakensberg, South Africa 2017 (available at < http://www.saaa.org.za/Downloads/Publications/TAX006%20Is%20sugar%20tax%20likely%20to%20succeed%20in%20its%20objective%20of%20curbing%20ovesity%20in%20SA.pdf>) 729 731; V Subban "Report back on the sugar tax workshop held by treasury" (21-12-2016) *GoLegal* <https://www.golegal.co.za/report-back-sugar-tax-workshop-held-treasury/> (accessed 13-03-2018).

[73] Seedat & Singh *Is sugar tax likely to succeed in its objective*? 731.

[74] Sturm et al (2010) *Health Aff* 1057.

December 2017, the National Treasury and the South African Revenue Service ("SARS") published the *Final Response Document on the 2017 Rates and Monetary Amounts and Amendment of Revenue Laws Bill – Health Promotion Levy* ("*Final Response Document*"),[75] responding to public comments and criticisms of the HPL.[76]

Some of the criticisms regarding the formulation of the HPL to achieve health objectives are that sugar is not the only harmful nutrient that contributes to obesity and NCDs, and that SSBs are not the only products that contain added sugars.[77] Jeffery describes the HPL as a "stealth tax," with the "supposed rationale" of obesity reduction, and argues that: it is rather a means of generating additional government revenue; and more effective measures exist for obesity reduction goals.[78] Some argue that, even if the HPL could successfully achieve its health objective and reduce external economic costs, the imposition of the HPL does not justify the regressive impact of such a tax, and its potential to cause job losses.[79] According to studies done by National Treasury and SARS, there is a potential for 5000 to 7000 job losses as a result of the HPL.[80] However, Oxford Economics, Econex and KPMG have all modelled the potential impact of the HPL and have similar reports that differ from these estimates. For example, KPMG has estimated that the total job losses will be between 41 700 and 72 000, with 28 000 to 44 000 direct job losses. Due to conflicting interests, however, it may prove difficult to predict the total job losses.[81] Another criticism of SSB taxes is that they are not well-targeted, and that other interventions might be more suitable for reducing obesity.[82] SSBs taxes have also been criticised for being unfair, because they affect individuals with a normal BMI,

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[75] RSA National Treasury & SARS *Final Response Document on the 2017 Rates and Monetary Amounts and Amendment of Revenue Laws Bill – Health Promotion Levy* (2017).

[76] 1.

[77] 4-6.

[78] A Jeffery *A Stealth Tax Not a Health Tax* IRR Report (2016) 1-6 & 27.

[79] J Urbach "Countries that taxed calories. Why it was abolished in some, increased revenue in others" (11-10-2016) *BizNews* <https://www.biznews.com/sa-investing/2016/10/11/countries-that-taxed-calories-why-it-was-abolished-in-some-increased-revenue-in-others/> (accessed 27-02-2018); Subban "Report back on the sugar tax workshop held by treasury" *GoLegal.* It has been predicted that between R2,7b to R3,2b in tax revenue will be lost to the *fiscus* if HPL is implemented. This amount constitutes income tax, corporate tax and VAT. Further, it is forecasted that the reduction of GDP will range between R10b and R14,6b, with the net reduction of GDP of over R3b.

[80] RSA National Treasury & SARS *Final Response Document* 14.

[81] Benade & Essop (2017) *SA Heart* 151. Further, BEVSA has predicted that the HPL will lead to around 60 000 job losses.

[82] R Griffith, M O'Connell & K Smith "Corrective Taxation and Internalities from Food Consumption" (2018) 64 *CESifo Econ Stud* 1 12.

and those who consume low volumes of SSBs.[83] However, because their consumption is low, these individuals will probably not be affected to a large extent.

1 1 3 3 Multiple-intervention approach

Although it is not entirely impossible, it would be very difficult to implement a measure that targets overweight and obese individuals exclusively. Further, it is impossible for any single intervention to eliminate the burden of obesity entirely, and certain interventions may be more suitable for preventing or reducing the prevalence of obesity. It is therefore necessary to use multiple interventions, even if each individual intervention does not directly target obese consumers.[84] In this regard, Backholer et al submit that taxes on unhealthy foods are not a "silver bullet" for preventing and decreasing the prevalence of obesity.[85] Further, Smed and Jensen provide that fiscal measures:

> "... cannot solve the problems with regard to nutrition and obesity for all groups of consumers. However, this does not exclude the possibility of using such instruments in combination with other regulations... e.g. information campaigns or rule-based regulation. Thus, it may be considered whether information can contribute to enhance the effectiveness of economic instruments – and vice versa, so that price changes can induce consumers' increased attention about the nutritional aspects of the foods consumed... a combined regulation utilising both tax/subsidy instruments and other types of regulation might be a proper way to go."[86]

Accordingly, the *Strategy* has acknowledged the need for a "multiple-intervention approach... rather than individual interventions" in order to achieve "substantially larger health gains."[87] In addition to fiscal measures, the *Strategic Plan* provides for

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[83] Jerrett (2018) *FDLJ* 479; S Thiele & J Roosen "Obesity, Fat Taxes and Their Effects on Consumers: A Legal-Economic Perspective" in H Bremmers & K Purnhagen (eds) *Regulating and Managing Food Safety in the EU* (2018) 168 175. It has been argued that it is overweight individuals, and not the consumption of certain unhealthy foods, that cause the relevant externalities. Following this argument, it has been submitted that other price incentives could be fairer where they are designed to specifically target overweight and obese individuals.

[84] Brownell et al (2009) *NEJM* 1064.

[85] K Backholer, M Blake & S Vandevijvere "Have we reached a tipping point for sugar-sweetened beverage taxes?" (2016) 19 *PHN* 2057 3060.

[86] S Smed & J Jensen *Differentiated Food Taxes as a Tool in Health and Nutrition Policy* (2005) unpublished paper prepared for presentation at the *'The Future of Rural Europe in a Global Agri-Food System'* XIth Congress of the European Association of Agricultural Economists in Copenhagen, Denmark, 24-08-2005 – 27-08-2005 (available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.494.7638&rep=rep1&type=pdf>).12.

[87] RSA NDOH *Strategy* 17-25; WHO *Commission on Ending Childhood Obesity* 10-14; WHO *Global Action Plan* 66. This multiple-intervention approach outlined in the *Strategy* is in line with the WHO's call for a "whole-of-society," multi-sectoral, life-course approach. These "multiple interventions" are framed in terms of 6 goals outlined in the Strategy: creating an institutional framework that supports inter-sectoral engagement; creating an enabling environment that will support the availability and accessibility to healthy food options; increasing the percentage of the population that engages in physical activity; supporting obesity prevention for children up to 12

the following interventions to target unhealthy diets: food advertising regulations; food labelling measures; worksite interventions; mass media campaigns; school-based interventions; and physician counselling.[88] This multiple-intervention approach was emphasized in the *Final Response Document*, which provides that:

> "To target the entire population, fiscal measures such as taxes are identified as cost-effective to address diet related NCD's... tax is not the only intervention being implemented but rather complements other interventions such as promoting overall healthy eating in various settings and consumer education... The implementation of the tax on sugary beverages is part of a comprehensive package of measures outlined in the Strategy and has not been put forward as the single policy response that will achieve the desired health outcomes."[89]

Therefore, although taxes on certain unhealthy food and non-alcoholic beverage products are the focus of this thesis, these measures should not be considered in isolation, because they are influenced by the existing policy framework. Interventions aimed at influencing the affordability of certain foods could be complemented by others aimed at influencing their availability and acceptability, and *vice versa*.

1 2 Research questions and hypotheses

The main research question is whether, in the light of the comparative study, the HPL has been effectively formulated in order to achieve its policy objectives. In order to answer this question, and drawing on the experiences of other jurisdictions, it is first necessary to address the overarching questions: whether it is possible for SSB taxes to change consumption patterns and reduce the prevalence of obesity and NCDs; and if so, which aspects of formulation of SSB taxes affect their success. Further, in order to contextualize SSB taxes and assess their impact on broader policy objectives, the following questions are also considered: whether SSB taxes have been used to pursue policy objectives other than health promotion; whether certain aspects of formulation influence how SSB taxes pursue these objectives; whether SSB taxes have potentially negative effects on other policy objectives; whether any other policy interventions have been used successfully in South Africa and the comparative jurisdictions; and whether the use of other interventions in conjunction with SSB taxes could simultaneously improve health outcomes and

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years old; communicating with, educating and mobilising communities; and establishing a surveillance system, and reinforcing monitoring, evaluation and research. Further, the Strategy identifies the following categories which propel overweight and obesity: lack of knowledge; physical inactivity; poor diet; and unsuitable early childhood feeding habits.

[88] RSA NDOH *Strategic Plan* 31.

[89] RSA National Treasury & SARS *Final Response Document* 5.

mitigate negative effects on other policy objectives. It is firstly hypothesized that: SSB taxes have not achieved meaningful reductions in obesity and NCDs in the comparative jurisdictions; and other interventions are more effective, or may achieve the objective with fewer negative consequences. However, if the comparative study indicates that it is possible for SSB taxes to meaningfully reduce the prevalence of obesity and NCDs, it is hypothesized that the current formulation of HPL is not optimal to achieve these objectives.

1 3 Methodology

This thesis is a critical comparative study on food excise taxes. In order to discuss these taxes in the context of other policy interventions, reference is made to legislation, government policies and evaluation studies on these interventions used in various jurisdictions. After this background is discussed, certain aspects of SSB taxes are explored. This portion of the study discusses SSB tax legislation in other jurisdictions, and establishes the relevant aspects of formulation that affect the success of these taxes. In order to determine the significance of these aspects, reference is made to various types of research, including peer-reviewed empirical studies where these are available. Jurisdictions for the comparative study were selected, considering: the prevalence of the relevant health issues in these jurisdictions; the popularity and sustainability of the taxes in these jurisdictions; comments made about these taxes in the *Policy Paper*; and whether these jurisdictions offer useful illustrations of the relevant aspects of formulation that influence the effectiveness of these taxes.

A number of food excise taxes in Denmark, Hungary, Mexico, the UK and the USA are examined, and the recurring criticisms of these taxes are identified. Consideration is first given to the status of the relevant health issues in each of these jurisdictions, and the existence of other policy interventions aimed at similar health outcomes. The relevant policy documents are considered, and the actual tax legislation is analysed. Where the legislation is not available in English, these sources are translated using Google Translate and dictionaries as necessary.[90] Through these case studies, the discussion on the relevant aspects of formulation is expanded, and exceptions to the general guidelines are considered. In the light of

[90] Google "Google Translate" *Google Translate* <https://translate.google.com/> (accessed 14-11-2019).

the lessons from the comparative study, HPL is analysed in the South African context. Following a similar framework for discussion used for the comparative jurisdictions, the potential for HPL to achieve its policy objective is considered, with reference to the relevant legislation, policy documents and any existing empirical studies.

1 4 Scope and limitations

This thesis aims to: critically compare the formulation of various food excise taxes in terms of their policy objectives; evaluate a number of aspects of the formulation of the HPL in the light of emerging evidence from the selected comparative jurisdictions as well as South Africa; suggest whether adapting the HPL in the light of emerging evidence might achieve greater health improvements and mitigate a number of its potentially regressive effects; and consider whether further developments in the multiple-intervention approach could complement these outcomes. However, this thesis does not seek to establish a causal relationship between any food excise tax and its effects in terms of its policy objective. According to the report by Ecorys *Food taxes and their impact on competitiveness in the agri-food sector* ("*Ecorys Report*")[91] and its *Annexes* ("*Ecorys Report Annexes"*),[92] observations on the effectiveness of these taxes need to be recorded for a minimum of 10 years before the tax, and a minimum of 10 years after implementation of a tax.[93] Further, during this observation period, there should be no changes to the tax. However, most food excise taxes have been introduced after 2011 and have been subject to changes. Few food excise taxes have been in place for this minimum period, and there are very limited analyses on these tax's effects.[94]

The debate surrounding SSB taxes has mostly been concerned with: the economic impact of these taxes; their potentially regressive effects; their paternalistic nature; the extent of their ability to influence consumption and improve health; and their efficacy, relative to other available interventions. Central to many of these criticisms is that there is a lack of evidence on how consumers and the food industry

[91] Ecorys *Food taxes and their impact on competitiveness in the agri-food sector: Final Report* (2014) 1-78.
[92] Ecorys *Food taxes and their impact on competitiveness in the agri-food sector: Annexes to the Main report* (2014) 1-243.
[93] 62.
[94] WCRF International *NOURISHING framework: Use economic tools to address food affordability and purchase incentives* 6-7.

respond to these taxes, and how any consumption changes translate to health improvements.[95] There is a large research gap in terms of the health impacts of consumption changes, but academic analyses have attempted to estimate the effect of food excise taxes on health objectives, using modelling and simulation studies.[96] However, the findings from these studies are inconclusive. Modelling studies typically do the following: simulate a food tax; predict consumption changes, while making assumptions about substitution effects; translate these consumption changes to dietary changes, and calculate the total calorie and nutrient intake changes for consumers; and then translate these calorie and nutrient intake changes into changes in BMI and obesity and NCD prevalence. These studies rely on a number of complex variables, and the quality of the data used affects the credibility of these calculations. However, the quality of these data used and the robustness of these methodologies are debateable. Further, regardless of the limited evidence, there are many factors that could influence the effects of a food excise tax, such as the industry response, substitution effects, inflation, and other health interventions.[97] However, because it is not possible to accurately establish the exact impact of a food excise tax on its policy objective, this thesis relies on the available research, and comments on the limitations of these studies as necessary.

1 5 Overview of chapters

This introductory chapter establishes the need for government intervention in order to address the growing issues of obesity and NCDs. The policy framework is discussed, and it is explained that both market-based and non-market-based interventions are necessary in order to reduce dietary risks and improve health outcomes. Chapter 2 “Non-Market-Based Interventions” discusses a number of non-market-based interventions in terms of the WHO’s recommendations and the “multiple-intervention approach.” Focusing on the selected comparative jurisdictions, a number of examples of these non-market-based interventions in other jurisdictions are discussed, and comments are made on the current position of these interventions in South Africa. Various aspects of taxes in general are then explained

[95] F Schneider “Health Levy or Sugar Tax: Is the Pain Worth the Gain?” (08-05-2019) *South African Institute of Tax Professionals* <https://www.thesait.org.za/news/450529/Sugar-Tax.htm> (accessed 27-09-2019).

[96] Thiele & Roosen “Obesity, Fat Taxes and Their Effects” in *Regulating and Managing Food Safety* 190.

[97] Ecorys *Report* 47.

in Chapter 3 “Considerations for Market-Based Interventions,” and the HPL is contextualised within the broader tax system. It is explained that taxes in general are used to pursue a number of objectives, but the focus for this discussion is on how taxes could be used to pursue health objectives. In the context of health objectives specifically, it is considered how these taxes could translate to dietary and other health improvements through a number of channels, and how these objectives were framed in the selected comparative jurisdictions. The various factors that could influence how these taxes ultimately translate to dietary improvements and health outcomes are then considered, and comment is made on how certain aspects of formulation could affect this. While Chapter 3 shifts the focus towards market-based interventions, it is still considered how non-market-based interventions could be used to complement market-based interventions and mitigate potentially negative effects on other policy objectives.

In the light of the considerations highlighted in Chapter 3, Chapter 4 “Formulation of Market-Based Interventions” then discusses the relevant aspects of formulation that could influence how these taxes translate to dietary improvements and health outcomes. In addition to discussing the formulation of the HPL and SSB taxes in the selected comparative jurisdictions, a number of other types of market-based interventions are discussed in order to compare and contrast the relevant aspects of formulation. Comments are then made on the relevant advantages and challenges presented by certain aspects of formulation, and suggestions are made about which types of formulation might be more suitable for certain policy objectives and their channels for health improvement. Chapter 5 “Impact on Obesity and Other Objectives” then discusses the impact that these taxes have had in the comparative jurisdictions. With reference to certain aspects of formulation and the relevant considerations highlighted in Chapters 3 and 4, the potential impact that these taxes have had on health as well as other policy objectives is considered. The effects of the HPL are then considered, and comments are made on whether changes to certain aspects of this tax’s formulation could result in improved health outcomes. The discussion on the potential for health improvements is then expanded with reference to the discussion on the “multiple-intervention approach,” and comments are made about the development of certain non-market-based interventions as discussed in Chapter 2, with reference to the comparative jurisdictions. The

concluding discussion in Chapter 6 summarizes the relevant arguments made throughout the thesis and makes recommendations.

CHAPTER 2: NON-MARKET-BASED INTERVENTIONS

2 1 Introduction

As discussed above, government interventions in the consumer food environment are aimed at decreasing the acceptability, affordability and availability of unhealthy foods and beverages, with the ultimate objective of reducing dietary risk factors for obesity and obesity-related non-communicable diseases ("NCDs").[1] The consumer food environment comprises of: the food information environment, in which interventions are aimed at equipping consumers with the necessary knowledge and skills to make informed, healthy dietary choices; and the food market environment, in which interventions are aimed at encouraging or compelling various actors in the food industry to limit the acceptability, affordability and availability of unhealthy foods and non-alcoholic beverages.[2] The discussion in this chapter is therefore split into headings "2 Interventions in the food information environment," and "3 Interventions in the food market environment."

The World Health Organisation ("WHO") provides that the starting point for interventions aimed at improving the consumer food environment should be the advancement of nutritional information in the form of evidence-based dietary guidelines.[3] After such guidelines have been formulated, they could be communicated to the public through public awareness campaigns and labelling and marketing regulations. In addition to these measures aimed at improving the food information environment, market-based and other non-market-based interventions could be used to advance these guidelines in the broader consumer environment. Other non-market-based interventions include regulations on the availability of certain foods and non-alcoholic beverages, and food reformulation regulations.[4] The following discussion on these non-market-based interventions merely provides a brief overview of a selected number of these measures used in South Africa and other jurisdictions to pursue health objectives, and is by no means exhaustive.

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[1] WHO *Global Action Plan* 32-33.
[2] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 140.
[3] WHO *Population-based approaches* 27.
[4] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 141.

2 2 Interventions in the food information environment

2 2 1 Dietary guidelines, awareness campaigns and nutrition education

South Africa's Food-Based Dietary Guidelines ("FBDGs") provide as follows: "enjoy a variety of foods;" "be active;" "make starchy foods part of most meals;" "eat plenty of vegetables and fruit everyday;" "eat dry beans, split peas, lentils and soya regularly;" "have milk, maas or yogurt every day;" "fish, chicken, lean meat or eggs can be eaten daily;" "drink lots of clean, safe water;" "use fats sparingly" ("Choose vegetable oils, rather than hard fats"); "use sugar and foods and drinks high in sugar sparingly;" and "use salt and food high in salt sparingly."[5] While FBDGs are an important tool for promoting healthier diets generally, the use of a nutrient profiling model ("NPM") could also be useful for a number of interventions aimed at educating the population and helping consumers to choose healthier foods. NPMs are a type of system used to categorize the "healthiness" of certain foods and non-alcoholic beverages, according to their overall nutritional composition.[6] NPMs are particularly useful where they consider the type of product, and do not single out only one nutrient, but take into account other healthy qualities such as fruit and vegetable content.[7] NPMs are easily reproducible, and could thus have numerous applications for nutrition and obesity interventions.[8] For example, a NPM was developed for proposed regulations in South Africa in order to classify foods as "healthy" or "unhealthy" for the purposes of both labelling and marketing regulations.[9]

Following the formulation of evidence-based dietary guidelines, it is important to foster public awareness of these guidelines.[10] Although it is difficult to measure their actual impact on consumer behaviour, the WHO provides that nutrition education

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[5] HH Vorster, JB Badham & CS Venter "An introduction to the revised food-based dietary guidelines for South Africa" (2013) 26 *SAJCN* S5 S7.

[6] RSA NDOH "Nutrient Profile Model" (02-11-2012) *RSA NDOH* <http://www.health.gov.za/phocadownload/FoodInfor/NPC_NWU.html> (accessed 30-05-2019).

[7] L Mills *Considering the Best Interests of the Child when Marketing Food to Children: An Analysis of the South African Regulatory Framework* LLD dissertation, Stellenbosch University (2016) 268.

[8] T Poon, M Labonté, C Mulligan, M Ahmed, KM Dickinson & MR L'Abbé "Comparison of nutrient profiling models for assessing the nutritional quality of foods: a validation study" (2018) 120 *BJN* 567 567.

[9] Mills *Considering the Best Interests of the Child* 240.

[10] WCRF International "NOURISHING database" (09-05-2019) *WCRF International* <https://www.wcrf.org/int/policy/nourishing-database> (accessed 24-10-2019); WHO *Population-based approaches* 27.

and public awareness campaigns could effectively improve dietary behaviour.[11] In order to optimise their effects on consumption, these campaigns should be on-going and used across various media.[12] Public awareness campaigns could be conducted through mass media, at national or community levels, or in specific settings, such as nutrition education in schools and worksites.[13] Nutrition education forms part of the Life Orientation curriculum in South African schools.[14] Further, National Nutrition Week ("NNW") is celebrated annually in South Africa to advance certain nutrition messages.[15] The themes for NNW campaigns have sometimes been designed around the FBDGs. For example, the 2016 NNW theme was "Love your beans," and the 2017 theme was "Rethink your drink – choose water."[16]

Public awareness campaigns could also include social marketing initiatives, which are likely to be more effective if they target both nutrition and physical activity.[17] For example, mass media campaigns were used in France to discourage the consumption of foods containing added sugars, and to encourage physical activity and increased consumption of fruits, vegetables and wholegrain-rich foods.[18] In conjunction with taxes on unhealthy foods and non-alcoholic beverages, certain food

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[11] WHO *Global Strategy* para 40(1); WCRF "NOURISHING database" *WCRF*; WHO *Interventions on Diet and Physical Activity: What Works Summary* (2009) 13, 15-16 & 21-22. Public awareness campaigns should be evidence-informed, and comprise of clear, consistent and coherent messages conveyed by the food industry, grass-roots organisations, government experts and NGOs. High intensity school based interventions focused on diet and or physical activity that are comprehensive and have multiple components are regarded as effective interventions by the WHO. Although few clinical outcomes have been measured, the following interventions showed positive psychological and behavioural changes: the CATCH programme and Pathways programme in the USA included in the school curriculum physical activity and healthy meals in schools, with a family-based/parental component; and the Know Your Body programme in Crete, which further reported substantive reductions in fat intake. School-based interventions may also be cost effective and sustainable, because they are implemented by teachers. Nutrition education could also be used in primary healthcare settings. Nutrition education in primary healthcare settings is particularly important for individuals with elevated NCD risk factors, but is also important for prevention in low-risk individuals.

[12] WCRF "NOURISHING database" *WCRF*.

[13] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 143; WCRF International *NOURISHING framework: Give nutrition education and skills* (2019) 3; WHO *Interventions on Diet and Physical Activity* 19-20. Community-based interventions could include dietary education, community development campaigns and group-based physical activity.

[14] WCRF *Give nutrition education* 3.

[15] South African Government "Basic Education celebrates National Nutrition Week, 11 to 14 Oct" (07-10-2016) *South African Government* <https://www.gov.za/speeches/national-nutrition-week-7-oct-2016-0000> (accessed 30-09-2019).

[16] RSA NDOH *National Nutrition Week 2017: "Rethink your drink – choose water!"* (2017) 1; South African Government "Basic Education celebrates National Nutrition Week" *South African Government.*

[17] WHO *Global Action Plan* 67; WHO *Population-based approaches* 33-34.

[18] WCRF International *Curbing global sugar consumption: Effective food policy actions to help promote healthy diets & tackle obesity* WCRF Policy brief (2015) 14.

information campaigns could be used to: inform the population that the government plans to introduce such taxes; explain the rationale behind these taxes; increase awareness on the relevant health concerns related to unhealthy diets; and explain how consumers could change their consumption in line with these health objectives. For example, the successful implementation of sugar-sweetened beverage ("SSB") taxes in Mexico and Berkeley has largely been credited to public awareness campaigns by civil society organisations which increased public and political support for these taxes in the face of strong industry opposition.[19]

2 2 2 Labelling regulations

Evidence has shown that: consumers who want to eat healthily make use of nutrient lists and interpretive labels; and health claims and nutrient content claims can change consumers' perception of the relevant food and non-alcoholic beverage products. The WHO provides that "consumers require accurate, standardized and comprehensible information on the content of food items in order to make healthy choices."[20] In order to enhance healthier decision-making, it is therefore important to implement labelling regulations to increase consumer information and prevent misleading labelling practices.[21] Labelling regulations could include rules relating to: ingredients lists on pre-packaged food and non-alcoholic beverage products; nutrient lists on pre-packaged foods and beverages, or on menus in restaurants; health claims and nutrient content claims; and interpretive or warning labels on food products themselves, on shelves in shops, or on menus in restaurants and other food service establishments.[22]

The WHO provides that labelling rules are a cost-effective intervention that could effectively increase consumer awareness, and assist consumers in making informed choices.[23] There is limited research on the effectiveness of labelling regulations to improve diets, but it has generally been recognized that consumers should be provided with information on the food that they consume.[24] In terms of European

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[19] WCRF International *Building momentum: lessons on implementing a robust sugar sweetened beverage tax* WCRF Report (2018) 14.
[20] WHO *Global Strategy* para 40(4).
[21] WCRF "NOURISHING database" *WCRF*.
[22] WCRF International *NOURISHING framework: Nutrition label standards and regulations on the use of claims and implied claims on food* (2019) 1-16.
[23] WHO *Global Action Plan* 33; WHO *Population-based approaches* 29.
[24] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 145; T Emrich, Y Qi, W Lou & M Abbe "Traffic-light labels could reduce population intakes of calories,

Union ("EU") Regulations, all pre-packaged food and beverage products marketed in the EU need to apply a label, containing certain mandatory information.[25] Among other particulars, these labels need to provide a list of ingredients and a nutritional declaration.[26] A number of jurisdictions have similar legislative provisions requiring food manufacturers to provide a nutritional information declaration on pre-packaged food labels, including Australia, Canada, India, Mexico and the United States of America ("USA").[27]

While the provision of such information is important for consumer protection, evidence suggests that higher-income consumers probably benefit more from labelling regulations than lower-income consumers. In order to minimise health inequalities, labelling regulations should therefore be accompanied by some educational component.[28] While the interpretation of nutrition labels is an important aspect of nutrition education curricula, food product labels that contain too much information may still be overwhelming and difficult for children or other vulnerable consumers to interpret.[29] Interpretive, front-of-package ("FOP") labels may be easier to understand, and assist these consumers in making healthier food choices. These FOP labels could be based on calories, guideline daily amounts ("GDAs") of certain nutrients, or the integration of various nutrient contents into one score, based on a NPM.[30] In addition to informing consumers, the use of such a labelling system might encourage food manufacturers to improve their products' nutritional value in order to comply with the relevant NPM's "healthy" requirements.[31] The simplest form of these labels is one, consistent FOP symbol that indicates whether the product complies with certain nutritional requirements. For example, the "Keyhole" symbol used in Nordic countries may only be printed on food products that are certified to contain

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total fat, saturated fat, and sodium" (2017) 12 *PLoS ONE* 1 2; G Viola, F Bianchi, E Croce & E Ceretti "Are Food Labels Effective as a Means of Health Prevention?" (2016) 5 *JPHR* 139 141.

[25] Regulation (EU) No 1169/2011 of the European Parliament and the Council of 25 October 2011 on the provision of food information to consumers *OJ* L 304 22-11-2011.

[26] Art 9(1). For example, other particulars include the weight or volume of the product, and the quantities of certain ingredients and categories of certain ingredients.

[27] WCRF *Nutrition label standards* 1-2.

[28] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 144.

[29] J Berning & D Sprott "Examining the Effectiveness of Nutrition Information in a Simulated Shopping Environment" (2011) 42 *Journal of Food Distribution Research* 60 74.

[30] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 144.

[31] RSA NDOH "Nutrient Profile Model" *RSA NDOH*; Emrich et al (2017) *PLoS ONE* 2.

comparably less sugar, fat and salt, and more fibre than other food products in its category.[32]

The "traffic light" FOP labelling system used in the United Kingdom ("UK") has been commended as an effective FOP interpretive labelling system.[33] This system uses a colour-coded nutritional display on the front of food products, stipulating the fat, saturated fat, sugar and salt content as a proportion of the relevant GDAs. These nutritional contents are each coloured in green, amber or red, depending on whether they have relatively low, medium or high levels of these nutrients. This use of colours is easily recognisable and attracts consumers' attention, and the use of a simple format across a broad range of products makes it easier for consumers to compare and make healthier decisions.[34] However, this "traffic light" system still requires a relatively higher level of consumer education, because certain food products could have a "green" content of saturated fat, but a "red" content of sugar. Further, this system does not take into account any redeeming nutritional characteristics of the food product, such as protein, fibre and fruit and vegetable content.[35] The "Nutri-Score" FOP labelling system used in France has components of both the "Keyhole" system and the "traffic light" system: in terms of a NPM, the overall nutritional composition of a food product is valued, and assigned a score from -15 (healthiest) to +40 (least healthy); and this score is represented as a grade from a dark green "A" (healthiest) to a red "E" (least healthy) on a scale. Unlike the "traffic light" system in the UK, this NPM does take into consideration the product's content of protein, fibre and fruits and vegetables.[36]

Food labelling in South Africa is currently regulated in terms of the Regulations Relating to the Labelling and Advertising of Foodstuffs published in Government

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[32] WCRF *Nutrition label standards* 6; DLM van der Bend & L Lissner "Differences and Similarities between Front-of-Pack Nutrition Labels in Europe: A Comparison of Functional and Visual Aspects" (2019) 11 *Nutrients* 1 6. Kindly refer to Annex B of this thesis "Nordic Keyhole Logo for front-of-package food labels."

[33] British Nutrition Foundation "Healthy Living / Helping you eat well / Looking at labels" (17-12-2016) *British Nutrition Foundation* <https://www.nutrition.org.uk/healthyliving/helpingyoueatwell/324-labels.html?start=3> (accessed 30-09-2019). Kindly refer to Annex C of this thesis "Example of the "traffic light" labelling system in the UK."

[34] UK DH *Guide to creating a front of pack (FoP) nutrition label for pre-packed products sold through retail outlets* (2016) 6-7.

[35] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 144.

[36] WCRF *Nutrition label standards* 7; Van der Bend & Lissner (2019) *Nutrients* 7. Kindly refer to Annex D of this thesis "Example of "Nutri-Score" labelling system in France."

Notice No. R 146 ("Regulations 146"),[37] of the Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972 ("Foodstuffs, Cosmetics and Disinfectants Act"). In terms of these regulations, pre-packaged foodstuffs are required to carry a label, containing the following information: the name of the foodstuff; the name and address of the seller, manufacturer or importer of the foodstuff; the product's ingredients, listed in descending order of the total mass of the final product; the net contents in the packaging in terms of International System of Units ("SI-units"); directions for using the foodstuff, where it would otherwise be difficult to appropriately use the foodstuff without directions; and any special storage conditions that might be applicable.[38] These regulations also have a number of provisions to prevent misleading or false nutritional claims. For example, Regulation 22(a) of Regulations 146 provides that the names used for ingredients should be the same name that would be used if that ingredient was sold independently as a foodstuff.[39] This provision could limit misleading ingredient labels that use less common words, such as "sucrose" to describe sugar.

However, labels on pre-packaged foodstuffs in South Africa are currently only required to provide nutritional information where certain claims are made about the nutritional value of the product. These include claims that the particular foodstuff is a "source of," "high in," "low," "very low" or "virtually free" or "free" from the following nutrients: energy; fat; omega-3 fatty acids; polyunsaturated fatty acids; monounsaturated fatty acids; cholesterol; protein; cartenoids; alcohol; carbohydrates; mono- and disaccharides; dietary fibre; sodium; and vitamins and minerals.[40] Where such claims are made, the following nutritional information needs to be printed in tabular form on the label titled "Typical Nutritional Information," displaying the content per 100 grams or 100 millilitres, and per single serving: energy, in kilojoules; protein, in grams; glycaemic carbohydrate, in grams, of which total sugar, in grams; total fat, in grams; of which Saturated fat, in grams; dietary fibre, in grams; and total sodium, in milligrams. The provision of nutrient reference

[37] GN R 146 in *GG* 32975 of 01-03-2010.
[38] Regs 9 and 17.
[39] Reg 22(a).
[40] Regs 50 and 52.

values "is optional" and where no claims are made, the provision of nutritional information is voluntary.[41]

The current position is unsatisfactory and arguably inconsistent with other measures in the multiple-intervention approach. While Regulations 146 serve an important consumer protection function in terms of requiring ingredients lists and preventing misleading claims, the provision of nutritional information should be mandatory. Where the provision of this information is not mandatory, it could undermine the health impact of other interventions. For example, if school children are taught about nutrition and how to interpret food labels in Life Orientation, the desired outcome is that these children take nutrition into account when making purchasing decisions. Where nutritional information is not available on the relevant products at the point-of-purchase however, the desired outcome of healthier consumption decisions is largely diluted.

The difficulties presented by the lack of mandatory requirements are highlighted in the case of the Health Promotion Levy ("HPL"). Although the HPL aims to target the sugar content in certain SSBs, the total sugar content cannot be determined where nutritional information is not supplied, and the only indicator that the product should be subject to HPL is that sugar is listed as an ingredient.[42] According to the *Policy Paper*, mandatory "minimum nutritional information labelling... will go a long way in assisting the implementation of the tax on SSBs however it is currently not an impediment."[43] However, it could be argued that, while the lack of mandatory labelling regulations in this regard is not an "impediment" to implementation, it does not support the objective of reducing sugar consumption. Because legislators have resorted to applying punitive higher rates for HPL products that do not supply nutritional information, these products are not really taxed according to their sugar content: certain un-labelled HPL products might contain less sugar than their labelled counterparts, but the extent to which their prices increase is such that consumers are more likely to substitute away from these products; and it is also possible that certain

[41] Reg 50(1)-(3) and Annex 2. Further, where any other nutritional information is required in terms of these regulations, this is printed below "total sodium," in alphabetical order, starting with vitamins, then minerals, and then other information. Further, where applicable, information on other fats and cholesterol is printed below "of which Saturated fat (g)." Labels also need to indicate the analysis method used to calculate the dietary fibre content. Kindly refer to Annex E of this thesis "Minimum mandatory nutrition information."

[42] Regs 9(d) and 17.

[43] RSA National Treasury *Policy Paper* 20.

un-labelled HPL products contain more than 20 grams of sugar per 100 millilitres, and thus their price increases according to sugar content are relatively lower than their labelled counterparts. This unequal treatment might present an opportunity for tax avoidance or other responses by actors in the food industry that frustrate the health objective.

It is submitted that, even though labelling regulations may not be the most "cost-effective" intervention "to address obesity," mandatory provision of nutritional information is an important starting point to complement other interventions.[44] Draft Regulations Relating to the Labelling and Advertising of Foods published in Government Notice No. R 429 ("Draft Regulations 429") to the Foodstuffs, Cosmetics and Disinfectants Act for public comment in May 2014.[45] Among other amendments, Draft Regulations 429 provide for the mandatory labelling of nutritional information on pre-packaged foodstuffs, regardless of whether or not claims are made.[46] Further, Draft Regulations 429 provide for much stricter criteria where claims can be made. Among other requirements, the relevant foodstuff would need to comply with the nutritional criteria under the NPM provided on the National Department of Health's ("NDOH") website.[47] While these provisions could improve the food information environment in line with health objectives, Draft Regulations 429 have been criticised for various reasons and have not yet been implemented.

Another criticism of the current food labelling regulations in South Africa is that, where the provision of nutritional information is required, it needs to be provided "in English and *where possible,* at least one other official language of the Republic of South Africa."[48] (Emphasis added). Due to administrative costs and limited space on labels, it would probably not be *possible* or practical to provide this information in additional languages. Without the use of an effective FOP labelling system in addition to the standard nutritional information, Draft Regulations 429 would not improve this position. These regulations provide that the information "shall be in

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[44] RSA NDOH *Strategy* 19. According to the *Strategy,* the cost per head in 2010 for fiscal measures was R0,20, and that the cost-per-head for the other "most cost-effective interventions to address obesity" were: R0,90 for food advertising regulations; R2,50 for food labelling regulations; R4,50 for worksite interventions; R7,50 for mass media campaigns; R11,10 for school-based interventions; and R11,80 for physician counselling.

[45] GN R 429 in *GG* 37695 of 29-05-2014.

[46] Reg 52(1).

[47] RSA NDOH "Nutrient Profile Model" *RSA NDOH*; Reg 53(7) of GN R 429 in *GG* 37695 of 29-05-2014.

[48] Reg 7(1)(a) of GN R 146 in *GG* 32975 of 01-03-2010.

English, and *may be* in at least one other official language of the Republic of South Africa."[49] The Constitution of the Republic of South Africa, 1996 ("Constitution") recognises the following eleven official languages in South Africa: isiZulu, isiXhosa, English, Afrikaans, isiNdebele, Setswana, Sesotho, Xitsonga, Tshivenda and siSwati.[50] English is only spoken by 8,1% of the population inside the home, and by 16,6% outside the home. In 2018, English was only the sixth-most spoken language inside the home, and the second-most spoken language outside the home, next to IsiZulu with 25,3% inside the home and 25,1% outside the home.[51] These statistics do not even consider the proportion of the population with a sufficient level of literacy to read English and interpret the nutritional information, where it is provided. It might therefore be necessary to introduce a mandatory FOP labelling system in addition to mandatory regulations on the provision of nutrition information, particularly where a large number of consumers cannot understand English.

The need for such an FOP labelling system is recognised under Objective 2.4 of the *Strategy,* which provides that it will be necessary to "investigate, test and establish an appropriate educational tool for front-of-pack labels and meals in restaurants considering low literacy populations," and that a "user-friendly food labelling education tool" should be implemented within the time frame from 2015/16 to 2016/17.[52] Although a voluntary FOP labelling system has been proposed under Draft Regulations 429, such a system has not yet been implemented in South Africa. This voluntary FOP labelling system provided for in terms of Draft Regulations 429 is similar to the "traffic light" system in the UK. In terms of these draft regulations, certain nutritional information could be provided on the main panel of pre-packaged foodstuffs, but only in addition to the mandatory nutritional information, and according to the prescribed format.[53] Similarly to the "traffic light" system in the UK, only the contents of energy, fat, saturated fat, sugar and sodium are stipulated in terms of this proposed FOP labelling system in Draft Regulations 429. However, there are a number of differences between these two systems, including that the

[49] Reg 10(1)(a) of GN R 429 in *GG* 37695 of 29-05-2014.
[50] S6 of the Constitution.
[51] Stats SA *General Household Survey* Statistical Release P0318 (2018) 9. English was preceded by the following languages, as the second-most spoken language inside the home in 2018: IsiZulu with 25,3%; IsiXhosa with 14,8%; Afrikaans with 12,2%; Sepedi with 10,1%; and Setswana with 9,1%
[52] RSA NDOH *Strategy* 27.
[53] Reg 53(9)(a)-(b) of GN R 429 in *GG* 37695 of 29-05-2014.

threshold values for classifying foods as red, green and yellow or amber are much lower under Draft Regulations 429 than under the "traffic light" system.[54] Along with these proposed amendments to labelling regulations, the Draft Regulations R429 also provide for much stricter marketing regulations with respect to children.[55]

2 2 3 Marketing regulations

Evidence has shown that marketing has an impact on food preferences, and thereby influences the acceptability of unhealthy foods and non-alcoholic beverages. The food and beverage industry spends large amounts of money on marketing, because it has been proven to be an effective means to increase sales and profits.[56] Marketing practices are no longer limited to traditional media such as television ("TV"), radio and print media, and these food corporations are continually inventing new, innovative ways to market unhealthy food and beverage products.[57] These new marketing techniques concentrate on branding and forging customer relationships, and include the following: online marketing; product placement; sponsorship; point-of-sale displays; promotion through philanthropic endeavours; "viral marketing" communications; and the use of promotions and endorsements by celebrities, brand mascots and popular children's characters.[58] Children are particularly vulnerable to marketing practices, which are pervasive in many parts of their lives, including school environments, sports and other entertainment activities.[59] The WHO recognised the need for protection in this regard in 2004 in the *Global Strategy*, and subsequently published a *Set of Recommendations on the Marketing of Foods and*

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[54] UK DH *Guide to creating a front of pack (FoP) nutrition label* 19-20; Reg 53(9)(c)-(d) and Table 2 of GN R 429 in *GG* 37695 of 29-05-2014. For example, the fat content for purposes of the "traffic light" system is green for solid foods below a 3g/100g threshold, and 1,5g/100ml threshold for liquids. Under Draft Regulations 429, only solid foods and liquids below a 0,5g/100g or 0,5g/100ml threshold are classified as "green," while any solid foods above 3g/100g threshold, and any liquids above a 1,5g/100ml threshold are classified as "red." The "red" classification for purposes of the "traffic light" system is 17,5g/100g for solid foods, and 8,75g/100ml for liquids. Similarly for saturated fats, the classification for the "red" threshold for purposes of Draft Regulations 429 is the same as that for the "green" threshold for purposes of the "traffic light" system: 1,5g/100g for solid foods; and 0,75g/100ml for liquids. Further, the energy content is printed against a white background under the "traffic light" system, while Draft Regulations 429 provide that this value should also be printed against a red, yellow or green background.

[55] Reg 65 of GN R 429 in *GG* 37695 of 29-05-2014.

[56] WHO *Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages to Children* (2010) 7.

[57] Mills *Considering the Best Interests of the Child* 295.

[58] WHO *Set of Recommendations* 7.

[59] Mills *Considering the Best Interests of the Child* 295.

Non-Alcoholic Beverages to Children ("*Set of Recommendations*")[60] and *A Framework for Implementing the Set of Recommendations*.[61]

Research indicates that marketing restrictions could successfully reduce children's exposure to marketing, but the criteria of these restrictions will influence their effectiveness.[62] In terms of its *Set of Recommendations*, the WHO provides that governments should develop policies to reduce the impact of marketing unhealthy foods and non-alcoholic beverages to children, considering: any country-specific challenges; the nature, extent and effects of existing food marketing practices; and the available resources and potentially positive and negative effects of such a policy on all stakeholders.[63] Unhealthy foods are described in the *Set of Recommendations* as foods and non-alcoholic beverages that are high in free sugars, saturated fats, trans-fatty acids ("TFAs") or salt. Places where children gather, such as schools, should be free from all marketing media of these foods.[64] There are various implementation approaches for these policies, including statutory regulation, voluntary industry initiatives, industry self-regulation and co-regulation.[65] Statutory regulations have taken a number of forms, including: restrictions on TV, radio, magazine and online food advertisements to children; restrictions on purchasing incentives such as "free toys" with meals; restrictions on the use of celebrities, animations or cartoon characters in food advertisements to children; and requirements that certain food advertisements are accompanied by health messages or warnings. Among others, Brazil, Canada, France, Hungary, Ireland, Mexico, South Korea, the UK, and the USA have used various forms of these marketing regulations.[66]

South Korea prohibits certain forms of marketing of certain energy-dense, nutrient-poor foods ("EDNPs") between 17:00 and 19:00, and during children's

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[60] WHO *Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages to Children* (2010) 1; WHO *Global Strategy* para 40(3).

[61] WHO *A Framework for Implementing the Set of Recommendations on the Marketing of Foods and Non-Alcoholic Beverages to Children* (2012) 1.

[62] WCRF "NOURISHING database" *WCRF*.

[63] WHO *Set of Recommendations* 8-12.; WCRF "NOURISHING database" *WCRF*.

[64] WHO *Set of Recommendations* 8-9.

[65] 10.

[66] WCRF International *NOURISHING framework: Restrict food advertising and other forms of commercial promotion* (2019) 9-11; D Studdert, J Flanders & M Mello "Searching for Public Health Law's Sweet Spot: The Regulation of Sugar-Sweetened Beverages" (2015) 12 *PLoS Med* 1 3. Since 2014, Brazil prohibits all forms of marketing communications to children under 12, including TV commercials, radio broadcasting, print advertisements, websites, promotions and point-of-sale displays.

programmes.[67] Further, the marketing of EDNPs is prohibited: through channels that use non-food purchase incentives, such as toys, to encourage consumption by children; and by schools and businesses within 200 metres of schools. EDNPs include certain processed and prepared foods, such as confectionery, hamburgers and non-alcoholic beverages, and are classified in terms of a NPM according to their total energy, sugar, saturated fat, sodium and protein content.[68] *The UK Code of Broadcast Advertising* ("*BCAP Code*") also prohibits television and radio advertisements and product placement of certain high saturated fat, sugar or sodium ("HFSS") food products to children under the age of 16.[69] HFSS products are also classified in terms of a NPM, which operates as follows: products are first scored according to the total energy, saturated fat, sugar and sodium ("unhealthy components") content per 100 grams; points are awarded for the content of protein, fibre, fruit, vegetable and nuts ("healthy components"); the points for the healthy components are subtracted from the points for the unhealthy components; and then products are classified as "healthy" or "unhealthy" according to the number of points scored.[70]

While the focus of most of these regulations is to reduce children's exposure to marketing of unhealthy foods, some regulations have a broader scope of application. The WHO provides that, because children are dependent on their parents and caregivers, it may be necessary to consider how these parents and caregivers are

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[67] WCRF *Restrict food advertising* 3; USDA *The Special Act on Children's Dietary Life Safety Management* Global Agricultural Information Network Report KS9020 (2009) 2. These forms of marketing include TV, internet and radio marketing. Article 2 of the Special Act on the Safety Management of Children's Dietary Life defines "children" as below the age of 18.

[68] USDA *The Special Act on Children's Dietary Life Safety Management* 3-6.

[69] Rule 32.5.1 of the UK ASA *The UK Code of Broadcast Advertising* v 1.2.15 (2010); Brambila-Macias et al (2011) *FNB* 367; WCRF *Restrict food advertising* 2. Ireland also prohibits marketing of foods that do not comply with its NPM: these regulations prohibit advertisements, product placement, sponsorships and teleshopping for foods high in sugar, fats and salt during TV and radio programmes when over 50% of the audience is comprised of children under the age of 18. The use of nutrient or health claims in advertisements targeting children under the age of 13 is also prohibited, and there is a limit on advertising time for foods high in sugar, fats and salt: advertisements for these foods are limited to 1 in 4 advertisements, or 25% of total sold advertising time.

[70] UK DH *Nutrient Profiling Technical Guidance* (2011) 5; UK DH *Guide to creating a front of pack (FoP) nutrition label* 6-7. HFSS products are classified as food products with more than 4 points, and beverages with more than 1 point. This NPM used to determine HFSS foods for advertising purposes is different from the one used for purposes of the "traffic light" labelling system. While both of these NPMs consider the energy, saturated fat, sugar and sodium content, there are a number of differences: the "traffic light" system also considers the total fat content; and the NPM used for marketing regulations also take into account healthy components that are not considered for the "traffic light" system.

influenced by marketing techniques.[71] In terms of French regulations for example, nutritional messages need to accompany food advertisements for certain processed foods and drinks containing added sweeteners, fat and sodium. These regulations apply to all TV advertisements, targeting both children and adults. The nutritional messages are based on the National Institute of Health Education's principles of nutrition education, and include messages such as: "For your health, avoid eating too many foods that are high in fat, sugar or salt;" and "For your health, exercise regularly."[72] While very strict marketing regulations may face strong opposition from the food and non-alcoholic beverage industry, it is submitted that this approach used in France may be less restrictive. Such an approach also emphasizes consistency with the relevant nutritional messages and may also serve to educate vulnerable adult consumers.

It is difficult to measure the effectiveness of marketing regulations, but modelling studies indicate that these restrictions may have positive outcomes on dietary attitudes.[73] Lee et al provide that South Korea's regulations encouraged manufacturers to reformulate their products to escape the EDNP classifications, which has a positive impact on children's food environments.[74] Further, food companies reduced their advertising budget by 31% during the first four months of these regulations, and the number of advertisement placements decreased by 58%.[75] Silva et al provide that self-regulation does not appear to reduce marketing, but estimated that there was a 9,7% reduction in total advertising expenditure after the introduction of the co-regulatory framework in the UK, and a 19,4% reduction in TV advertising expenditure.[76] However, because these regulations only target a

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[71] WHO *Set of Recommendations* 8-12.; WCRF "NOURISHING database" *WCRF*.
[72] WCRF *Restrict food advertising* 12; Studdert et al (2015) *PLoS Med* 3.
[73] WCRF *Restrict food advertising* 6; SY Chou, I Rashad & M Grossman "Fast-food restaurant advertising on television and its influence on childhood obesity" (2008) 51 *J L & Econ* 599 599; T Dhar & K Baylis "Fast-Food consumption and the Ban on Advertising Targeting Children: The Quebec Experience" (2011) 48 *Journal of Marketing Research* 799 810. For example, research has shown that, as a result of the prohibition of all advertisements to children under the age of 13 in Quebec, there was a decreased probability of families in Quebec to purchase junk food, when compared to families in the neighbouring province Ontario. This prohibition in Quebec applies not only to food marketing in general, but to all commercial advertising to these children on television, internet, mobile phones, print, radio and signage. These regulations have been implemented since 1978, and also prohibit commercial advertisements using promotional items.
[74] Y Lee, J Yoon, S Chung, S Lee, H Kim & S Kim "Effect of TV food advertising restriction on food environment for children in South Korea" (2017) 32 *Health Promot Int.* 25 26.
[75] 25.
[76] A Silva, LM Higgins & M Hussein "An Evaluation of the Effect of Child-Directed Television Food Advertising Regulation in the United Kingdom" (2015) 63 *CJAE* 583 588 & 595-597; Ofcom *HFSS*

limited range of marketing channels, some food manufacturers were able to circumvent the regulations and use other marketing media.[77] Food advertisers may have re-allocated expenditure to other media, but the reduction in advertising may lead to some change in demand. Although the exact impact that these regulations have on demand and behavioural patterns is unclear, it is generally agreed that marketing practices promoting unhealthy diets are in conflict with the WHO's endeavour to reduce children's exposure to these messages, and should be restricted.[78]

Along with labelling regulations, the legislative framework for food advertising in South Africa is provided in terms of Regulations 146. To an extent, these regulations aim to prevent misleading or false claims in certain forms of food advertising.[79] For example, labels may not contain certain prohibited statements, which include: claims that the product provides balanced nutrition; the words "health," "healthy," "wholesome" or "nutritious;" medicinal claims or the word "cure;" or endorsements on the nutritional quality of foodstuffs, or other visual representations that create the impression of an endorsement by health practitioners, manufacturers, certain organisations, etc.[80] Labels and advertisements may also not contain a pictorial representation "that is false, misleading or deceptive or is likely to create an erroneous impression regarding the contents... character, origin, composition, quality, nutritive value" or nature of a foodstuff.[81] Apart from Regulations 146, there are limited legislative restrictions on food advertising.[82] The Consumer Protection Act 68 of 2008 seeks to protect consumers' interests.[83] Among other areas of consumer

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advertising restrictions Final Review (2010) 10. However, the UK Office of Communications ("Ofcom") found that 4-9 year olds and 10-15 year olds viewed 39% and 28% less advertising during the period of industry self-regulation in 2005-2007. In terms of this voluntary self regulation, food companies claimed to have reduced their advertising of unhealthy foods. Prior to 2004, the UK food industry was not subject to any marketing regulations, and since 2008, a co-regulation framework has been implemented between Ofcom and the ASA.

[77] Lee et al (2017) *Health Promot Int.* 20 & 25; HM Government *Introducing further advertising restrictions on TV and online for products high in fat, sugar and salt (HFSS)* (2019) 13. Because of loopholes such as this, stricter regulations are under consideration in the UK.

[78] Brambila-Macias et al (2011) *FNB* 367; Mills *Considering the Best Interests of the Child* 295.

[79] Mills *Considering the Best Interests of the Child* 264.

[80] Regs 1 and 13 of GN R 146 in *GG* 32975 of 01-03-2010. "Claim" is defined as "any written, pictorial, visual, descriptive or verbal statement, communication, representation or reference brought to the attention of the public in any manner including a trade name or brand name and referring to the characteristics of a product, in particular to its nature, identity, nutritional properties, composition, quality, durability, origin or method of manufacture or production."

[81] Reg 33.

[82] Mills *Considering the Best Interests of the Child* 264.

[83] Preamble of the Consumer Protection Act 68 of 2008.

protection, this Act seeks to prevent false and misleading marketing practices.[84] However, the marketing of food is mostly guided by the self-regulatory provisions of the Advertising Code of the South African Advertising Standards Authority ("ASA Code").[85] Although the ASA Code makes certain provisions for the marketing of food to children, this protection is limited.[86]

The regulation of marketing food and non-alcoholic beverages to children would be much stricter in terms of Draft Regulations 429, which provide that "no food or non-alcoholic beverage shall be marketed to children unless it complies with all the criteria in Guideline 14."[87] Among these criteria in terms of the *Draft Guidelines applicable to the Draft Regulations Relating the Labelling and Advertising of Foods* ("*Draft Guidelines*"),[88] the relevant foods and non-alcoholic beverages to be marketed to children: need to "pass the screening criteria of the" NPM available on the NDOH's website; may not contain added non-nutritive sweeteners, fructose, added aluminium or added fluoride; and may not contain more than 5 grams "total sugars," 3 grams of fat, 1,5 grams of saturated fat or 120 milligrams of sodium per 100 grams in solid foods, or more than 2,5 grams total sugars, 1,5 grams of fat, 0,75 grams of saturated fat or 120 milligrams of sodium per 100 millilitres in liquid foods and beverages.[89] One important criticism of the criteria provided in the *Draft Guidelines* is that the threshold contents for the relevant nutrients are so strict that they exclude a number of healthy foods such as eggs, unsalted almonds and cashew nuts, 100% fruit juices and certain fruits and dairy products. This is in conflict with health objectives, and particularly the objective of promoting a healthy diet as envisioned in terms of the FBDGs.[90] Mills provides that the current regulation of marketing of foodstuffs to children in South Africa "fails to meet the proposals by the WHO and other international standards," but also criticises the proposals in terms of Draft Regulations 429 and the *Draft Guidelines* for various reasons. For example, Mills criticises the strict proposed nutritional criteria for these regulations, because

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[84] S29(a).
[85] ASASA "Advertising Code of Practice" (30-05-2006) *The Advertising Standards Authority of South Africa* <http://www.asasa.org.za/codes/advertising-code-of-practice> (accessed 27-09-2018).
[86] Mills *Considering the Best Interests of the Child* 251.
[87] Reg 65 of GN R 146 in *GG* 32975 of 01-03-2010.
[88] RSA NDOH *Draft Guidelines applicable to the Draft Regulations Relating the Labelling and Advertising of Foods (R429 of 29 May 2014), for compliance purposes* (2014).
[89] Clause 6(2) of Guideline 14 of the RSA NDOH *Draft Guidelines*.
[90] Mills *Considering the Best Interests of the Child* 268-269.

even “foods commonly considered as healthy and promoted by the” FBDGs would not comply, which would “lead to absurd results.”[91]

2 3 Interventions in the food market environment

2 3 1 Regulations on the availability of certain foods and beverages

2 3 1 1 Overview of guidelines and regulations in comparative jurisdictions

In order to discourage the consumption of unhealthy foods and beverages, a number of jurisdictions have implemented regulations to restrict their availability in certain settings, including Australia, Brazil, Finland, Hungary, Mexico and the UK.[92] Since 2005 for example, all vending machines containing foods and drinks have been prohibited in schools in France.[93] As a result, it was observed in 2006 that there had been a reduction in consumption of total energy, free sugars, fats and sodium during morning recesses.[94] In January 2017, France also introduced a prohibition on the sale or offer of free “bottomless” or unlimited SSBs or artificially-sweetened beverages (“ASBs”) in restaurants, schools and other facilities used to accommodate, educate or receive children.[95] Similar regulations could find application in various settings other than schools. For example, dietary behaviour could be influenced by introducing voluntary and mandatory regulations that limit the availability of unhealthy foods in certain health facilities, religious institutions, workplaces, educational environments and food and service establishments.[96] In terms of a voluntary policy in Thailand, for example, sugar sachets exceeding 6 grams and 8 grams were removed from hotels in 2015, and replaced with 4 gram packets.[97] Such restrictions could influence consumption by limiting the convenience of consuming unhealthy foods, relative to healthier foods. Although the majority of the interventions discussed target energy, fats, sugar and sodium, a number of

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[91] 265 & 268-269.
[92] WCRF *Offer healthy food* 4-12 & 14-15; WCRF *Curbing global sugar consumption* 8.
[93] WCRF *Offer healthy food* 9.
[94] WCRF *Curbing global sugar consumption* 9. Compared to consumption in 1998, there had been a 10-12g reduction in consumption of free sugars, and between 90-115 kcal reduction in energy intake. Before the vending machine restriction, vending machines were present in: 39,3% of public schools for children aged 11-13; and 89,4% of public schools for children aged 14-17.
[95] *Art L.3232-9 Code de la santé publique (Version consolidée au 1 juin 2019*) [“French Public Health Code”]. “Children” refers to children under the age of 18.
[96] WHO *Global Strategy* para 40(1).
[97] WCRF International *NOURISHING framework: Improve nutritional quality of the whole food supply* (2019) 6.

jurisdictions have also targeted other unhealthy ingredients. For example, Latvia and Lithuania prohibit the sale of energy drinks to children.[98]

Regulations on the availability of certain foods and beverages could be an extension of marketing restrictions aimed at protecting children. For example, in addition to prohibiting the marketing of EDNPs, South Korea also prohibits the sale of these same foods in schools and by businesses within 200 metres of schools.[99] A number of States in the USA have imposed regulations restricting the sale of certain food and drink products in primary and secondary schools, including: restrictions on the sale of unhealthy foods and beverages through vending machines in various States and localities; restrictions and prohibitions on the sale of most SSBs in elementary schools in California since 2004; and restrictions on the foods that may be served to school children in Arkansas, Massachusetts, North Carolina, Oklahoma and Oregon.[100] Evidence suggests that food standards restricting the availability of unhealthy foods decrease their availability and may reduce their consumption, but it is unclear whether this has an impact on daily SSB and energy consumption.[101]

A number of factors might limit the effectiveness of these policies, including: where these policies only target a limited range of SSBs; where children consume SSBs at home; or where children are not restricted from bringing SSBs to school.[102] These policies will therefore not be effective at addressing excessive SSB consumption alone, but it may be an effective tool when used along with other measures.[103] For example, in order to complement the sales ban on energy drinks to children, both Latvia and Lithuania have also implemented marketing restrictions and other information initiatives. In Latvia, energy drinks may not be sold or advertised in educational institutions, and these drinks may not be offered freely to children for

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[98] 12. "Children" are defined as persons under the age of 18. Although the WCRF describes these interventions as "limits on the availability of high-sugar food products and beverages," it could be argued that this is a misnomer, as these interventions actually target caffeine, with no reference to sugar. These prohibitions apply to energy drinks that contain an excess of 150mg /l caffeine, and in the case of Latvia, at least one other stimulant, such as taurine.

[99] WCRF International *NOURISHING framework: Offer healthy food and set standards in public institutions and other specific settings* (2019) 14; USDA *The Special Act on Children's Dietary Life Safety Management* 2-6.

[100] Mann (2017) *Environmental Law* 713; WCRF *Offer healthy food* 19 & 26.

[101] BM Popkin & C Hawkes "Sweetening of the global diet, particularly beverages: patterns, trends and policy responses" (2016) 4 *Lancet Diabetes Endocrinol.* 178 181; WCRF "NOURISHING database" *WCRF*.

[102] DR Taber, JF Chriqui, R Vuillaume & FJ Chaloupka "How State Taxes and Policies Targeting Soda Consumption Modify the Association between School Vending Machines and Student Dietary Behaviors: A Cross-Sectional Analysis" (2014) 9 *PLoS One* e98249 1 7.

[103] Popkin & Hawkes (2016) *Lancet Diabetes Endocrinol.* 181.

promotional purposes. Further, Latvian regulations require that warning signs be displayed at the point of sale, that read "High caffeine content. Not recommended for children and pregnant and breastfeeding women."[104]

Similar regulations could also be used to increase the availability of healthy foods in these environments, including: initiatives that promote the availability of healthy foods in stores and public institutions; fruit and vegetable initiatives in schools; and regulations or incentives for healthier food and drinks to be offered as the default option in restaurants and other food service outlets.[105] For example, in terms of Norway's School Fruit Programme, schools were required to provide students in grades 1 to 10 with one piece of fruit or vegetable every school day.[106] Research has shown that students in these schools increased their consumption of fruits and vegetables and decreased frequent consumption of unhealthy snacks such as SSBs and potato crisps.[107] To optimise health effects from these initiatives, they should be accompanied by information and education strategies and collaboration with the stakeholders involved with the supply of food to schools.[108] While the National School Nutrition Programme aims to ensure South African school children are fed nutritious meals in order to secure school attendance, there are currently no mandatory regulations restricting the sale and marketing of unhealthy food and non-alcoholic beverage products at schools.[109]

Further, the WHO provides that multi-component workplace interventions could be effective, particularly where these include both the provision of healthy foods and space for physical activity.[110] In addition to certain educational aspects, the South

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[104] WCRF *Restrict food advertising* 10. Further, energy drink advertisements in Latvia: are required to include a warning on their negative health effects, which represents a minimum of 10% of the advertisement; may not indicate that these drinks quench thirst, be associated with sporting activities, or imply that they could be consumed with alcohol; and may not be broadcasted before, during or after TV programmes aimed at children, or in print media aimed at children.

[105] WCRF International *NOURISHING framework: Set incentives and rules to create a healthy retail and food service environment* (2019) 2-6; WHO *Global Action Plan* 32; WCRF *Offer healthy food* 14.

[106] WCRF *Set incentives and rules* 3.

[107] WCRF *Curbing global sugar consumption* 12. For students with parents that had a lower educational status, the reduction in frequency of consumption of unhealthy snacks was more apparent. Further, there was a certain amount of earmarked revenue for this initiative for each municipality. Information on this amount of revenue was available to the public, which increased the transparency of the programme.

[108] WCRF "NOURISHING database" *WCRF*.

[109] Mills *Considering the Best Interests of the Child* 245.

[110] WHO *Interventions on Diet and Physical Activity* 17-18.

African NDOH's *National Guide for Healthy Meal Provisioning in the Workplace*[111] provides voluntary guidelines for foods sold through vending machines at workplaces and meals served at work functions and at work cafeterias, etc. Among others, these recommendations include: only serving water, coffee and tea at work functions; that vending machines and kiosks should not offer carbonated soft drinks, energy drinks or sweetened fruit juice drinks, but only water, 100% fruit juice and diet soft drinks; and that "each vending machine must display the total energy content for each item sold."[112] This guide does not expressly encourage physical activity inside or outside the workplace, and only makes one reference to obesity, which reads: "Remember: eating too much energy per day is linked to overweight and obesity."[113]

2 3 1 2 Portion Cap Rule in New York City

The USA has the highest prevalence of obesity among the Organisation for Economic Co-Operation and Development ("OECD") countries, where around 39,8% of adults and 18,5% of children were obese during the period 2015 to 2016.[114] Although the United States Department of Agriculture ("USDA") and the Food and Drug Administration ("FDA") have implemented a number of interventions to address obesity, political lobbying has largely prevented the progress of these interventions at the Federal level, so the majority of measures have been implemented at the state and local government levels.[115] Not unlike the rest of the USA, "people in New York... are fat, getting fatter:"[116] in 2010 in New York, around 23,4% of adults and 20,7% of elementary school children were obese.[117] Over the last 30 years, Americans' energy and sugar consumption have increased drastically: energy consumption has increased by around 200 to 300 calories; and SSBs represent the

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[111] RSA NDOH *National Guide for healthy meal provisioning in the workplace* (2016) 1-31.
[112] 18-20.
[113] 12.
[114] CM Hales, MD Carrol, CD Fryar & CL Ogden *Prevalence of Obesity Among Adults and Youth: United States, 2015-2016* NCHS Data Brief (2011) 1; GA Roth, F Abd-Allah, KH Abate & K Alam "The Burden of Cardiovascular Diseases Among US States, 1990-2016" (2018) *JAMA Cardiol.* E1 E2 & E8.
[115] SA Roache, C Platkin, LO Gostin & C Kaplan "Big Food and Soda Versus Public Health: Industry Litigation Against Local Government Regulations to Promote Healthy Diets" (2018) XLV *FULJ* 1051 1057. For example, a number of states have adopted regulations on health and fitness screenings, and education on physical activity and nutrition. Further, a number of states have implemented regulations restricting the overcrowding of fast food restaurants.
[116] C Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" (16-09-2012) *YouTube* <https://www.youtube.com/watch?v=dIfhwkPMvpc> (accessed 19-07-2019) 3:48 – 4:04.
[117] NYC Obesity Task Force *Reversing the Epidemic: The New York City Obesity Task Force Plan to Prevent and Control Obesity* (2012) 4. Further, 58% of adults in NYC were overweight or obese, with around 34,6% of adults overweight.

largest portion of this increase, as well as 43% of all added dietary sugar consumption. Along with high levels of SSB consumption and increasing levels of overweight and obesity, the portion sizes for SSBs have increased over recent decades. For example, while the only available serving size for Coca-Cola in 1955 was around 207 millilitres, many restaurants in New York currently offer Coca-Cola in serving cups of up to 946 millilitres.[118]

The "Portion Cap Rule" or "Soda Ban" was a health initiative that formed part of a broader health strategy in New York City ("NYC"), *The NYC Obesity Task Force Plan to Prevent and Control Obesity* (*"NYC Obesity Task Force Plan"*).[119] The *NYC Obesity Task Force Plan* comprised of various initiatives aimed at addressing childhood obesity, encouraging healthier diets, and promoting physical activity.[120] This rule was a planned regulation by the NYC Department of Health and Mental Hygiene Board of Health ("NYC Board of Health"), aimed at discouraging excessive soda consumption. It was proposed by Mayor Michael Bloomberg in May 2012, and was approved by the NYC Board of Health in September of the same year.[121] It was rationalized that the availability of such large SSB portion sizes encouraged excessive SSB consumption, and that setting maximum serving sizes would reduce sugar consumption. The NYC Board of Health provided that:

> "People tend to consume more calories at meals that include large beverage sizes. Its intent is to address the supersize trend and reacquaint New Yorkers with smaller

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[118] 13. The only available serving size for Coca-Cola in 1955 was 7 oz (around 207ml), and in 2010, the serving sizes for Coca-Cola at McDonalds ranged from 12 oz (around 355ml) to 32 oz (around 946ml); Convertunits "Convert oz to ml – Conversion of Measurement Units" (21-01-2019) *Convertunits* <https://www.convertunits.com/from/oz/to/ml> (accessed 28-10-2019).

[119] PA Diller "What is Localist Judging and Why Does It Matter?" (2013) 161 *U. Pa. L. Rev. Online* 331 334. The Portion Cap Rule was inaccurately better known as the "Soda Ban." However, the Portion Cap Rule was not an outright prohibition on soda, but rather on the sale of certain non-alcoholic beverages in containers that exceeded 16 ounces.

[120] NYC Obesity Task Force *Reversing the Epidemic* 3-6. It should be noted that a number of other policy interventions aimed at addressing the obesity epidemic had been implemented in NYC in the years leading up to the proposed Portion Cap Rule, including: regulations on the sale of certain foods and non-alcoholic beverages through vending machines; regulations on the provision of calorie information on menu boards in chain restaurants; and "health bucks" initiatives for purchases made at farmers' markets with food stamps.

[121] H Min "Large-Sized Soda Ban as an Alternative to Soda Tax" (2013) 23 *JLPP* 187 190; NYC Obesity Task Force *Reversing the Epidemic 7*-19. These measures included the installation of water fountains at schools and improving the nutritional quality of foods and beverages supplied to children at NYC-licensed children's camps. Along with the Portion Cap Rule, it was suggested that public education campaigns and improved nutritional quality of foods supplied in hospitals could promote healthier diets.

portion sizes, leading to a reduction in consumption of sugary drinks among New York City residents."[122]

In terms of the proposed regulation in the NYC Health Code, Food Service Establishments ("FSEs") would not have been allowed to: sell or provide "sugary drinks" in containers exceeding 16 fluid ounces (around 473 millilitres); nor offer, sell or provide such self-service cups to customers.[123] To illustrate the Portion Cap Rule in practice, most restaurants have varying portion sizes for small, medium, large and "children's"-sized drinks.[124] "Small" (473 millilitre) drinks from McDonalds and Dunkin' Donuts would have been acceptable in terms of the Portion Cap Rule, while "medium" (621 millilitre) and "large" (946 millilitre) drinks would not.[125] Because a large serving of Coca-Cola from these restaurants contains more than 104 grams of sugar (415 calories), the reduction in consumption of these larger servings would have been desirable from a public health perspective. If this rule influenced customers who usually purchased large servings of Coca-Cola from McDonalds to simply replace these with the small servings, then energy consumption from SSBs could potentially be reduced by 50%.[126] Certain studies have indicated that this Portion Cap Rule could have reduced SSB consumption and led to health improvements.[127] While it could be argued that such interventions restricting portion sizes are well-targeted because they limit *excessive* SSB consumption, the overall impact on health would depend on a number of complicated factors.

The definition of FSEs is also limited to places were "food is prepared and intended for individual portion service," and excluded food retail stores, food processing establishments and private homes.[128] While the Portion Cap Rule would have applied to restaurants, movie theatres and sports venues, supermarkets and

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[122] NYC Obesity Task Force *Reversing the Epidemic* 14; NYC Board of Health *Notice of Adoption of an Amendment (§ 81.53) to Article 81 of the New York City Health Code* Resolution adopted September 13, 2012 (2012) 3. The NYC Board of Health rationalized that "By addressing the increasing size of sugary drinks and reacquainting New Yorkers with more appropriate portion sizes, the City is taking an important step in reducing sugary drink consumption and combating obesity and its resulting morbidity and mortality."

[123] New York City Health Code § 81.53(a)-(c). § 81.53(a)(3) defines "self-service cups" as containers and cups provided by FSEs that are used by customers to fill beverages.

[124] NYC Obesity Task Force *Reversing the Epidemic* 13. For example, a child-sized drink at McDonalds in 2010 was 12 oz (around 355ml).

[125] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube*. 1:18 – 1:46. At Subway, a small is 621ml, a medium is 946ml, and a large is 1301ml.

[126] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube* 1:26 – 1:36. The volume of Coca-Cola in one large McDonalds serving is equivalent to four 237ml bottles of Coca-Cola.

[127] Mann (2017) *Environmental Law* 714.

[128] N.Y. 10 CRR-NY 14-1.20(a).

convenience stores would not have been required to restrict their portion sizes for sugary drinks.[129] This rule would therefore have affected certain establishments differently, which would have limited its effectiveness. For example, while restaurants such as McDonalds would have needed to remove offerings for medium- (621 millilitre) and large-sized sugary beverages from their menus, convenience stores such as 7-Eleven could have still sold the same beverages in 1 479 millilitre "Double Gulp" containers.[130] Further, the Portion Cap Rule would not have restricted the portion sizes of the relevant SSBs available at these supermarkets and convenience stores.[131] Although this would have been less convenient than purchasing larger serving portions from the FSEs where customers purchased meals, it would still have been possible for these customers to purchase even larger quantities from nearby convenience stores. Such an outcome would clearly undermine any health objective.[132]

The Portion Cap Rule was criticised for various other reasons, a number of which are further discussed below.[133] For instance, this rule did not make provisions to prevent consumers from simply purchasing more than one serving of the targeted beverages.[134] Further, without additional rules prohibiting "bottomless" soda specials or unlimited refills, the Portion Cap Rule would do little to limit this form of excessive SSB consumption. The then-mayor of NYC, Michael Bloomberg acknowledged some of these shortcomings of the Portion Cap Rule's formulation during an interview, but emphasized that this rule also had the potential to improve health outcomes through educating or informing consumers:

> "And the idea here is... you tend to eat all the food in the container in front of you. If it's a bigger container, you would eat more; if it's a smaller... container... you would eat less... We're gonna have more deaths from obesity than from smoking... If you want to order two cups at the same time, that's fine, it's your choice. We're not taking away anybody's right to do things, we're simply forcing you to understand that you have to make the conscious decision to go from one cup to another cup... All we're trying to do is to remind you that this is something that... is detrimental to your health, and to do

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[129] *New York Statewide Coalition of Hispanic Chambers of Commerce v New York City Department of Health and Mental Hygiene* 970 N.Y.S.2d 200 (App. Div. 2013) at 204-205.
[130] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube*. 1:40.. At 7Eleven, "Gulp" sized drinks are around 591ml, "Big Gulp" drinks are around 887ml, "Super Big Gulp" drinks are around 1183ml, and "Double Gulp" drinks are around 1479ml.
[131] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube* 3:20 – 3:30.
[132] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube* 2:40 – 2:47.
[133] As discussed below under heading "4 4 3 3 Exemptions and exclusions" in Chapter 4 of this thesis.
[134] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube* 3:20 – 3:30.

something about this national epidemic. It's not perfect, it's not the only answer, it's not the only cause of people being overweight, but we've got to do something."[135]

2 3 2 Food and beverage reformulation regulations

Voluntary and mandatory regulations aimed at encouraging manufacturers and food service outlets to change recipes and reduce portion sizes have also been used to improve dietary quality. Voluntary reformulation initiatives have been used in a number of jurisdictions to reduce the sodium content in certain foods. These include Brazil, Mexico, South Korea and the USA.[136] Among others, Denmark, Greece, Hungary, the Netherlands and the USA have introduced mandatory regulations that restrict the content of sodium or TFAs in certain foods.[137] In response to the burden of NCDs caused by excessive sodium consumption, mandatory sodium regulations were passed in South Africa in 2013, in terms of the Regulations Relating to the Reduction of Sodium in Certain Foodstuffs published in Government Notice No. R. 214 ("Regulations 214")[138] of the Foodstuffs, Cosmetics and Disinfectants Act. In terms of these regulations, food manufacturers are required to reduce the sodium content in a number of categories of food products, including: bread; breakfast cereals and porridges; butter and other spreads such as margarine; certain savoury snacks; certain flavoured potato crisps; and cured processed meats. The required maximum sodium contents are stipulated for each category, and were introduced in two phases, with deadlines in 2016 and 2019.[139] These regulations are believed to be an important step in decreasing the burden of NCDs in South Africa.[140] Estimates have shown that the reduction of sodium consumption in the case of bread could potentially prevent 7 400 deaths from cardiovascular diseases ("CVD"). Further, the

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[135] C Neistat "Soda Ban Explained" (09-09-2012) *The New York Times* <https://www.nytimes.com/2012/09/10/opinion/soda-ban-explained.html?_r=1> (accessed 19-07-2019).

[136] WCRF *Improve nutritional quality* 2-6.

[137] EHM Temme, MAH Hendriksen, IEJ Milder, IB Toxopeus, S Westenbrink, HAM Brants & DL van der A "Salt Reductions in Some Foods in The Netherlands: Monitoring of Food Composition and Salt Intake" (2017) 9 *Nutrients* 1 1; WCRF *Set incentives and rules* 7*;* WCRF *Improve nutritional quality* 7-11.

[138] GN R 214 in *GG* 36274 of 20-03-2013.

[139] Reg 2 of GN R 214 in *GG* 36274 of 20-03-2013; Regulations Relating to the Reduction of Sodium in Certain Foodstuffs and Related Matters: Amendment, GN R 812 published in GG 42496 of 31-05-2019. The first deadline for compliance with these maximum sodium contents was 30 June 2016; and the second deadline for the further reduced maximum sodium contents was 30 June 2019. However, these regulations were amended in 2019, so that the deadline for compliance was extended to 30 April 2020 for certain processed meats and raw-processed meat sausages.

[140] KJ Hofman & R Lee *Intersectoral case study: Successful sodium regulation in South Africa* WHO report (2013) 9.

reduction of sodium content in bread could also prevent 4 300 non-fatal strokes per year, which could save R350 million in healthcare spending.[141]

In March 2003, Denmark became the first country in the world to implement regulations on the maximum content of TFAs in oils and fats.[142] In terms of these regulations, industrially-produced fats and oils may not contain more than 2 grams of TFAs per 100 grams.[143] This regulation applies to fats, oils, and foods produced with or containing these fats and oils. Any person who sells food products containing an excess of 2 grams of TFAs per 100 grams, is liable to a fine.[144] Restrepo and Rieger provide that these regulations effectively reduced the TFA content in certain foods, which has led to decreased mortality rates from CVD.[145] Most jurisdictions that restrict the TFA content food products set this limit to 2 grams of TFAs per 100 grams of total fat.[146] A similar regulation has been implemented in South Africa since 2011: in terms of the Regulations Relating to Trans-Fat in Foodstuffs published in Government Notice No. R 127,[147] it is prohibited to sell, manufacture or import any oils or fats that contain an excess of 2 grams of TFAs per 100 grams of oil or fat. This regulation applies to oils and fats, or processed foods containing oils or fats intended for human consumption.[148]

Saturated fat has also been targeted by certain interventions.[149] For example, in 1987 in Mauritius, regulations were introduced that supported the reformulation of staple foods as part of a health intervention programme. Because soya bean oil contains less saturated fat than palm oil, the content of palm oil in general cooking oil was limited, and replaced with soya bean oil. The WHO regards this as an effective intervention: after five years of implementation, cholesterol levels had decreased significantly, and saturated fat consumption had decreased by around 3,5% of total

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[141] 6.
[142] WCRF *Improve nutritional quality* 10.
[143] *Bekendtgørelse nr 160 af 11.03.2003 om indhold af transfedtsyrer i olier og fedtstoffer m.v.* [Executive Order on the content of trans fatty acids in oils and fats, etc.] § 1 & 3.
[144] § 5.
[145] BJ Restrepo & M Rieger "Denmark's Policy on Artificial Trans Fat and Cardiovascular Disease" (2016) 50 *AJPM* 69.70. This study found that these regulations led to a decrease in deaths from cardiovascular disease, by 14,2 deaths per 100 000 people per year, compared to the control scenario where Denmark did not introduce these regulations.
[146] WHO Regional Office for Europe *Eliminating trans fats in Europe: A policy Brief* (2015) 3.
[147] GN R 127 in *GG* 34029 of 17-02-2011.
[148] Regs 1 and 2.
[149] WHO *Global Action Plan* 32.

energy consumption.[150] Other jurisdictions have used interventions to limit saturated fat consumption from certain meat products: the sale of certain meat products with high fat and low meat contents has been prohibited in Fiji and Samoa; while the sale of certain meats that do not comply with maximum fat standards has been prohibited in Ghana.[151]

Similar regulations could also be used to reduce the content of added sugars in foods and non-alcoholic beverages, but there are currently no mandatory regulations in this regard; mandatory reformulation and portion size regulations mostly target sodium and TFAs.[152] Rather, product reformulation to reduce sugar content has usually been an indirect result of market-based interventions that increase the prices of more sugary products, relative to less sugary products. For example, in order to encourage reformulation, Hungary introduced a tax on certain salty food products that contain an excess of a certain quantity of salt.[153] Certain sugar-sweetened food and beverage products that contain an excess of a certain quantity of sugar are also taxed in Hungary in terms of this same legislation.[154] Taxes formulated in this way could be viewed as a type of "voluntary" reformulation regulation, because they incentivise manufacturers to reformulate their products to escape or limit their tax liability.

The *Ecorys Report* provides that:

> "Method and cost of reformulation differ greatly from product to product. In certain cases the change is very easy and cheap (e.g. less salt is added to the product). In other cases it requires the execution of a comprehensive research and development program, and/or the extension of the existing technology or even the installation of a new one. These might be costly and might take several years."[155]

Apart from such market-based interventions that encourage product reformulation, a number of jurisdictions have voluntary agreements to reduce sugar content in foods, and it appears that these might be effective. For example, Coca-Cola reduced the calories in their carbonated drinks portfolio by 5,3% as a result of the challenge

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[150] WHO *Interventions on Diet and Physical Activity* 11-12.

[151] WCRF *Improve nutritional quality* 11-12. Fiji has prohibited the sale of mutton flaps since 2000, and Samoa prohibits the sale of turkey tails and products made from turkey tails. These maximum standards in Ghana have been used since the 1990s: 15% for dressed poultry; 25% for de-boned beef and pork; and 25% for mutton where the back fat is removed, or 30% where it is not removed.

[152] WHO *Global Action Plan* 32; Popkin & Hawkes (2016) *Lancet Diabetes Endocrinol.* 181.

[153] *2011. évi CIII. Törvény a népegészségügyi termékadóról* [Law on the public health product tax CIII of 2011] § 2(d)-(e).These salty foods are provided for in 2 separate categories: certain salty snacks; and powdered soups and salty condiments.

[154] § 2(a). As discussed below under heading "4 4 3 Scope of products targeted" in Chapter 4 of this thesis.

[155] Ecorys *Report* 32.

by the UK government to the food industry "to reduce overall sugar across a range of products that contribute most to children's sugar intakes by at least 20% by 2020, including a 5% reduction in the first year of the programme."[156] Further, voluntary commitment charters were introduced in France in 2006, in terms of which French companies pledged to: reduce their products' content of sugar, fat and salt; reduce their portion sizes; and comply with marketing requirements. To date, more than 35 companies have pledged to these charters.[157] These voluntary commitments have been commended for leading to product reformulation, particularly in the case of sugar: during the period 2008 to 2010, there was a reduction in sugar in the French food market of between 11 700 to 13 000 tonnes, as a result of reformulation efforts by the first fifteen companies signed to these charters; and over the period 2008 to 2011, there was a 10% reduction in the sugar content in breakfast cereals.[158]

Voluntary agreements and industry self-regulation in the context of obesity prevention and reduction in general has been criticised. These arguments are not considered in detail, but industry engagement may be necessary. Particularly in the case of product reformulation, industry insights about how consumers might respond to new formulations are invaluable for policymakers. For example, following the introduction of the Public Health Product Tax ("PHPT")[159] in Hungary, Nestlé Hungary submitted that product reformulation should not occur suddenly or in isolation, especially where taste is an important factor for consumers. If only one product is reformulated in such a manner, consumers are likely to reject the reformulated product and instead purchase other, competitive products that meet their taste preference. Therefore, product reformulation should aim to gradually change consumers' taste expectations, and should be a co-ordinated effort by manufacturers and the government health authority.[160]

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[156] PHE *Sugar Reduction: Achieving the 20%: A technical report outlining progress to date, guidelines for industry, 2015 baseline levels in key foods and next steps* (2017) 4; HM Government *Childhood Obesity: A Plan for Action* (2016) 4; Coca-Cola Great Britain & Coca-Cola Enterprises Ltd *Choice and Information: Delivering on our Commitments* (2015) 4.

[157] WCRF *Improve nutritional quality* 3-5.

[158] WCRF *Curbing global sugar consumption* 14.

[159] *2011. évi CIII. Törvény a népegészségügyi termékadóról* [Law on the public health product tax CIII of 2011].

[160] Ecorys *Report Annexes* 220.

2 4 Conclusion

The advancement of information and nutrition education is an important component of a "multiple-intervention approach" aimed at improving consumption and minimizing dietary risk factors for NCDs. The starting point for interventions aimed at improving both the food information environment and the food market environment should be the formulation of evidence-based dietary guidelines.[161] It is important to have clear and consistent messages regarding health and nutrition, and FBDGs provide a foundation for other interventions. For example, public awareness is fostered through the use of specific FBDGs as central themes for the NNW in South Africa.[162] Marketing and labelling regulations are also used to improve the food information environment. However, because evidence suggests that higher-income consumers are likely to benefit more from labelling regulations, it is important for these to be accompanied by some educational component.[163] An interpretive, FOP labelling system might be particularly useful for consumers who have limited nutrition education or literacy level in the language in which the nutritional information is provided on pre-packaged food labels. In addition to being easier to understand, the use of a simple format for an FOP labelling system across a broad range of products assists consumers in comparing and making healthier food choices.[164]

Where these FOP labelling systems are based on a NPM, they could further provide incentive to food manufacturers to improve the nutritional content of their products, in order to comply with the NPM's "healthy" requirements.[165] In this context, both mandatory and voluntary food product reformulation regulations have been used in order to improve the consumer food environment. For example, mandatory food product reformulation regulations have been implemented in South Africa, which set maximum levels for the content of sodium and TFAs in certain food products.[166] Other measures aimed at improving the consumer food environment include: regulations restricting the sale of certain foods and beverages in schools

[161] WHO *Population-based approaches* 27.
[162] WCRF "NOURISHING database" *WCRF;* WHO *Population-based approaches* 27; South African Government "Basic Education celebrates National Nutrition Week" *South African Government;* RSA NDOH *National Nutrition Week 2017* 1.
[163] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 144.
[164] Berning & Sprott (2011) *Journal of Food Distribution Research* 74; UK DH *Guide to creating a front of pack (FoP) nutrition label* 6-7.
[165] RSA NDOH "Nutrient Profile Model" *RSA NDOH*; Emrich et al (2017) *PLoS ONE* 2.
[166] GN R 214 in *GG* 36274 of 20-03-2013; Reg 2 of GN R 127 in *GG* 34029 of 17-02-2011.

and other settings; and regulations to increase the availability of healthy foods in certain settings.[167] The National School Nutrition Programme in South Africa is an endeavour to secure children's attendance at schools by providing nutritious meals. However, there are currently no mandatory regulations restricting the sale or marketing of unhealthy foods and beverages in South African schools.[168] Regulations 146 and the ASA Code offer very limited protection to children from marketing of foodstuffs in various settings in South Africa. Mills argues that the current position does not comply with the WHO's call to restrict marketing practices promoting unhealthy diets to children.[169]

Further, while Regulations 146 serve an important consumer protection function by preventing misleading claims, it is submitted that the current level of information required by these regulations is insufficient.[170] Nutrition education forms part of the Life Orientation curriculum in South African schools, but learners might not always be able to apply this knowledge in making healthier choices because of the lack of mandatory labelling regulations on the provision of nutritional information on all pre-packaged foods. Draft Regulations 429 provide for the mandatory labelling of nutritional information on pre-packaged foodstuffs, regardless of whether or not claims are made.[171] Further, Draft Regulations 429 provide for much stricter criteria for the marketing of foods and beverages to children.[172] Among other requirements, the relevant foodstuffs would need to comply with the screening criteria of the NPM provided on the NDOH's website in order to be marketed to children and for claims to be made on the product's label.[173]

Draft Regulations 429 have been criticised for various reasons and have not been implemented.[174] However, it is arguable that the mandatory provision of nutritional information on all pre-packaged foodstuffs would have been a positive development, and that such information serves as an important foundation for other non-market-based interventions. The lack of mandatory labelling regulations requiring the

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[167] WCRF *Offer healthy food* 1-4 & 14-18; WCRF *Set incentives and rules* 2-6; WHO *Global Action Plan* 32.
[168] Mills *Considering the Best Interests of the Child* 245.
[169] 251.
[170] 251.
[171] Reg 52(1) of GN R 429 in *GG* 37695 of 29-05-2014.
[172] Reg 65.
[173] Regs 53(7) & 65 of GN R 429 in *GG* 37695 of 29-05-2014; Clause 6(2) of Guideline 14 of the RSA NDOH *Draft Guidelines*.
[174] Mills *Considering the Best Interests of the Child* 265 & 268-269.

provision of nutritional information could also undermine the health objective of market-based interventions. For example, while the HPL aims to cause relatively larger price increases for more sugary beverages, the provision for assumed sugar content where SSB manufacturers do not provide nutritional information could result in arbitrary price increases. The lack of such mandatory regulations could further result in wasted time and resources, as legislators need to revise the provisions for the HPL products that do not provide nutritional information. The implementation of such labelling regulations would therefore support the health objective and reduce administrative complications for market-based interventions.

As was established in Chapter 1 above, the HPL is not a "silver bullet" to addressing obesity and obesity-related NCDs.[175] It is difficult to compare the effectiveness of these various types of market-based and non-market-based interventions, and it is acknowledged that not one these interventions will be effective in isolation. Instead of focusing on one type of intervention, these interventions should be used to complement and reinforce each other.[176] The *Strategy* provides that labelling regulations are not the most "cost-effective" intervention in the "multiple-intervention approach" to address the relevant health issues.[177] However, it is submitted that mandatory labelling regulations requiring the provision of nutritional information on all pre-packaged foods is an indispensible tool, and provides a foundation for other interventions to ensure consistency with the health objective.

[175] Backholer et al (2016) *PHN* 3060.
[176] RSA National Treasury & SARS *Final Response Document* 5.
[177] RSA NDOH *Strategy* 19.

CHAPTER 3: CONSIDERATIONS FOR MARKET-BASED INTERVENTIONS

3 1 Introduction

While Chapter 2 focused on non-market-based interventions and the need for multiple interventions to reinforce the health impact, this chapter focuses on market-based interventions, and specifically on taxes. This chapter explains various aspects of taxes in general, and contextualises the Health Promotion Levy ("HPL") within the broader tax system. It is explained that taxes in general are used to pursue a number of objectives, but the focus for this discussion is on how taxes could be used to pursue health objectives. In the context of health objectives specifically, it is considered how these taxes could translate to dietary and other health improvements through a number of channels, and how these objectives were framed in the selected comparative jurisdictions. The various factors that could influence how these taxes ultimately translate to dietary improvements and health outcomes are then considered, and comment is made on how certain aspects of formulation could affect this. While the arguments from Chapter 2 are still considered, the focus is shifted specifically to how non-market-based interventions could be used to complement market-based interventions in particular and mitigate potentially negative effects on other policy objectives.

3 2 Classification of taxes

The Organisation for Economic Co-Operation and Development ("OECD") defines taxes as "compulsory, unrequited payments to general government."[1] In an attempt to describe the characteristics of a tax, the Constitutional Court in *South African Reserve Bank and Another v Shuttleworth and Another* ("*Shuttleworth*")[2] referred to other cases which stated that: taxes constitute monies that are paid to a general revenue fund for general purposes, and no particular service is received in return for payment;[3] a punitive tax can constitute a tax if it is subject to the standard administration procedures for assessment and collection;[4] and it is required that a tax be imposed on the population as a whole, or a significant portion of the

[1] OECD *Revenue Statistics 1965-2017* (2018) Annex A.2 paras 1 and 5.
[2] 2015 ZACC 17 (CC) paras 49-50.
[3] *Permanent Estate and Finance Co Ltd v Johannesburg City Council* 1952 4 SA 249 (W) para 259.
[4] *Israelsohn v Commissioner for Inland Revenue* 1952 3 SA 529 (A) para 539.

population.[5] HPL forms part of the Customs and Excise Act, which the Constitutional Court has described as a fiscal piece of legislation: despite the extra-fiscal "important public purpose" of "customs and excise controls,"[6] the charges imposed by the Customs and Excise Act constitute taxes.[7]

There are various types of taxes which can be classified in a number of ways, including according to: the incidence of the tax, as either direct or indirect; the nature of the tax base, as income, consumption, or wealth; and the method used to calculate the amount of tax payable, as proportional, progressive or regressive. Direct taxes are charged on the taxpayers themselves, while indirect taxes are imposed on specific commodities and transactions. In the case of direct taxes, the entity that bears the legal burden of the tax also bears the economic burden of the tax. However, in the case of indirect taxes, the entity that bears the legal burden of the tax does not bear the economic burden of the tax; the tax is levied against one entity, but is ultimately paid by another.[8] Direct taxes include: Capital Gains Tax, "normal" income tax and donations tax in terms of the Income Tax Act 58 of 1962; and estate duty in terms of the Estate Duty Act 45 of 1955. Indirect taxes include

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[5] *Maize Board v Epol (Pty) Ltd* 2009 3 SA 110 (D) para 27.

[6] *Gaertner and Others v Minister of Finance and Others* 2013 ZACC 38 (CC) para 55.

[7] *South African Reserve Bank and Another v Shuttleworth and Another* 2015 ZACC 17 (CC) para 43; S77(1)(b) of the Constitution; SARS "Excise Duties and Levies" *SARS.* <http://www.sars.gov.za/ClientSegments/Customs-Excise/Excise/Pages/default.aspx> (accessed 06-03-2018)*;* SARS "*Ad Valorem* Products" (29-09-2017) *SARS* <http://www.sars.gov.za/ClientSegments/Customs-Excise/Excise/Ad-Valorem-Products/Pages/default.aspx> (accessed 08-03-2018). The Constitution provides for "national taxes, levies, duties" and "surcharges." The Constitutional Court in *Shuttleworth* provided that these terms are usually synonyms for each other and are used interchangeably. However, distinctions are drawn between these terms for a number of practical reasons. For example, because HPL is an excise levy, and not an excise duty, the revenue collected from HPL does not form part of the revenue-sharing pool of the SACU, and only South Africa benefits from it. Among others, excise duties are payable on certain alcoholic beverages, tobacco products, fuel products and *ad valorem* products. *Ad valorem* products are considered to be "luxury" products, and include electronic equipment, motor vehicles, cosmetics and perfumes. Excise duties are paid by the manufacturers of these products, and are collected in the SACU. Excise levies, on the other hand, are regulated separately by each SACU member state. South Africa imposes the following excise levies: fuel levy and the RAF levy on fuel and petroleum products; certain plastic bags; electricity generation that uses non-renewable or environmentally-harmful fuels, including coal, gas and nuclear energy; non energy-saving light bulbs; carbon dioxide emissions from motor vehicles; and tyres.

[8] J Venter, E Hamel & M Stiglingh *A Student's Approach to Income Tax Natural Persons* (2003) 2-3; Corporate Finance Institute "Indirect Taxes" (02-12-2018) *Corporate Finance Institute* <https://corporatefinanceinstitute.com/resources/knowledge/other/indirect-taxes/>.

value-added tax ("VAT") in terms of the Value-Added Tax Act 89 of 1991 ("VAT Act") and customs and excise taxes in terms of the Customs and Excise Act.[9]

Taxes based on the consumption of goods or services are defined as all taxes levied on: the production, sale, delivery, transfer, extraction or leasing of goods, and the performance of services; and the use of goods, the permission to use goods, and the permission to conduct certain activities. The OECD distinguishes between general taxes on goods and services and taxes on specific goods and services.[10] General taxes on goods and services are general consumption taxes which are levied at one or more of the stages of production or distribution, and include: VATs or Taxes on Goods and Services ("GSTs"), general sales taxes, and multi-stage cumulative taxes.[11] Proportional taxes are levied at a fixed rate against an amount of income, and progressive taxes have different tax rates, which increase as the taxable amount increases.[12] Regressive taxes have a tax rate that effectively decreases as the taxable amount increases. General taxes on goods and services are usually regressive in nature, because the rate paid on these products remains the same, and people with a lower income level spend proportionally more on these products than those with a higher income level.[13] The effect of these regressive taxes is that the poor suffer larger welfare losses than wealthier consumers.[14] It is important to minimise the impact of regressive taxes in developing countries where poverty is widespread.

In order to improve the progressivity of the tax system, many general goods and services tax systems apply "zero-ratings" or exemptions on certain foods.[15] Where such zero-ratings are used for healthy foods, it could be argued that the consumption

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[9] Cnossen "Introduction" in *Excise Tax Policy and Administration* 1; Corporate Finance Institute "Indirect Taxes" *Corporate Finance Institute.*

[10] OECD *Revenue Statistics* Annex A.5 para 55-76.

[11] OECD *Revenue Statistics* Annex A.5 paras 60-62; J Mirrlees, S Adam, T Besley, R Blundell, S Bond, R Chote, M Gammie, P Johnson, G Myles & J Poterba *Tax by Design* (2011) 168; Cnossen "Introduction" in *Excise Tax Policy and Administration* 1. In terms of VATs, the tax is levied on the value added at various stages, and deductions for inputs are available for taxpayers at each stage, except for the final consumer. Thus, under a VAT system, only the final consumption is taxed. In terms of general sales taxes, the tax is only levied at one stage. Other examples of general sales taxes include turnover taxes, manufacturer's sales taxes and retail sales taxes.

[12] Venter et al *A Student's Approach* 3; Schedule No. 1 para 1 of the Income Tax Act. South Africa has a progressive income tax structure, in terms of which the Income Tax Act provides for different tax rates for different tax brackets: those individuals earning an income within a higher tax bracket pay a progressively higher rate of income tax than those who earn in lower income brackets.

[13] Cnossen "Introduction" in *Excise Tax Policy and Administration* 16.

[14] C Snowdon *The Proof of the Pudding, Denmark's Fat Tax Fiasco* Institute of Economic Affairs Current Controversies Paper No. 42 (2013) 22.

[15] Cnossen "Introduction" in *Excise Tax Policy and Administration* 3.

of these healthy foods is effectively being subsidized. In the context of interventions aimed at encouraging healthier diets, a subsidy is essentially a financial benefit allocated by a government to certain consumers, businesses or producers to incentivise healthier consumption.[16] Similarly to the rationale that unhealthy food taxes decrease their consumption, subsidies that decrease the prices of healthy foods, will improve their affordability and thereby increase their consumption.[17] The following foods are zero-rated for VAT purposes in South Africa: brown bread; maize meal; samp; mealie rice; dried mealies; dried beans and lentils; pilchards; milk powder and dairy powder blends; rice; unprocessed fruits and vegetables; vegetable oils, except olive oil; milk; cultured milk; brown wheaten bread; eggs; legumes; cake wheat flour; and white bread flour. The rate of VAT increased from 14% to 15% in 2018.[18] The zero-rating is used to mitigate the regressive impact of VAT. After this VAT increasein 2018, a panel of experts was appointed to review these food items covered by the zero-rating.[19] While it is generally recognised that the zero-rated food items have health benefits, the main purpose for the zero-rating is not to promote healthy eating, but rather to alleviate the regressive impact of VAT because these foods are generally perceived to be consumed by poorer people.[20] The effect of these lower prices of certain healthy foodstuffs is that the regressive impact of VAT is mitigated, and the consumption of healthier foods is supported.

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[16] M Parkin *Microeconomics* 10 ed (2012) 383. These financial benefits can take a number of forms, including: grants; tax concessions, such as exemptions; and food vouchers to consumers.

[17] WCRF *Use economic tools* 15; R An "Effectiveness of subsidies in promoting healthy food purchases and consumption: a review of field experiments" (2012) 16 *PHN* 1215 1219 & 1225; WCRF "NOURISHING database" *WCRF*. Healthy food subsidies have been used in a number of jurisdictions, including France, Germany, the UK and the USA; Research has shown that food prices influence demand. Particularly for lower-income groups, it has been shown that targeted subsidies on healthy foods could encourage these consumers to choose healthier options.

[18] S11(1)(j) and Part B of Schedule No. 2 of the VAT Act.

[19] Independent Panel of Experts for the Review of the Zero Rating in South Africa *Recommendations on Zero Ratings in the Value-Added Tax System* (2018) 7-8. Following these recommendations, the zero-rating was extended to cover white bread, white flour and cake flour. Among other recommendations, this panel of experts recommended that baby formula should not be subject to the zero-rating "based on public health recommendations."

[20] E Muller *A Framework for Wealth Transfer Taxation in South Africa* LLD thesis, University of Pretoria (2010) 33; RSA National Treasury *Budget Review* (2018) 42. South Africa has implemented VAT since 1991, which is charged on most goods supplied and services rendered in South Africa, with certain exemptions and zero-rated goods and services. VAT is charged as a proportion of the price of the relevant goods and services. Until 1 April 2018, the rate of VAT was 14%, but it has since been increased to 15%. VAT is charged in addition to any excise tax on a particular good, so the total consumption tax on an excise product is the excise tax, plus VAT.

3 3 Policy objectives and principles of taxation

3 3 1 Health Promotion Levy in terms of tax policy objectives

The first step in designing an effective food excise tax is providing a clear objective, as this influences other aspects of formulation as well as the public and political response to the tax.[21] The most important purpose of taxation is revenue collection, as taxes are an important means of financing government activities.[22] However, in addition to revenue generation, taxes can also be used to pursue other socio-economic and political objectives, including: economic growth; reprising; and the redistribution of resources.[23] Hernández-Quevedo and Weatherly provide that there are the two primary objectives of food excise taxes in terms of reprising or health promotion: the direct primary objective is reducing consumption through increased prices; and the indirect primary objective is incentivising manufacturers to reformulate unhealthy products to minimize the increased costs of production or to avoid the tax's application.[24] Hernández-Quevedo and Weatherly further provide that the secondary objective of these taxes is to fund other health prevention initiatives, through the revenues collected from the tax.[25] Food excise taxes are therefore typically framed in terms of revenue generation, health promotion, or both.[26] There are limited examples of food excise taxes implemented specifically to pursue economic growth objectives, but the effect that these taxes have on other socio-economic objectives is an important consideration.[27]

The Constitutional Court in *Gaertner* provided that the primary or dominant purpose of excise taxes is ensuring "a constant stream of revenue for the State, with a secondary function of discouraging consumption of certain products that are

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[21] WCRF *Building momentum* 10.

[22] Muller *A Framework* 40; SARS "Excise Duties and Levies" *SARS.* For example, SARS has reported that the revenue generated by excise duties represents approximately 10% of the total revenue collected by SARS.

[23] R Bird & S Wallace "Taxing Alcohol: Reflections from International Experience" in S Cnossen (ed) *Excise Tax Policy and Administration in Southern African Countries* (2006) 21 22; Muller *A Framework* 37.

[24] C Hernández-Quevedo & H Weatherly "Health promotion, disease prevention and health inequalities" in D McDaid, F Sassi & S Merkur (eds) *Promoting Health, Preventing Disease The Economic Case* (2015) 259 261.

[25] 261.

[26] WCRF *Building momentum* 16.

[27] Bird & Wallace "Taxing Alcohol" in *Excise Tax Policy and Administration* 22; Muller *A Framework* 38-40. In terms of redistributive objectives, the living standards of lower socio-economic groups should be improved, so that economic opportunities can be pursued equally. Particularly in South Africa, where poverty is widespread, it is important to consider: the redistributive effects of taxes; and the effects on economic growth objectives, including inflation and unemployment.

harmful to health or the environment."[28] However, when the plan to introduce a tax on SSBs in South Africa was first announced in 2016, it was specifically framed in terms of health promotion. Although the implementation of an SSB tax was discussed in the context of additional revenue, this aspect was not emphasized in the 2016 *Budget Review:*

> "Obesity stemming from overconsumption of sugar is a global concern. Over the past 30 years the problem has grown in South Africa, which has the worst obesity ranking in sub-Saharan Africa, and led to greater risk of heart disease, diabetes and cancer... Fiscal interventions such as taxes are increasingly recognised as complementary tools to help tackle this epidemic... Government proposes to introduce such a tax on sugar-sweetened beverages... to help reduce excessive sugar intake."[29]

The *Policy Paper* provides that the objective of HPL is to decrease excessive sugar consumption, and thereby support the National Department of Health's ("NDOH") goal of reducing the prevalence of obesity and non-communicable diseases ("NCDs").[30] It is further explained that the HPL will assist in both: reducing negative health consequences to individuals as a result of excessive sugar consumption; and correcting a market failure, because some of the external costs from increased public healthcare expenditure will be reduced.[31] Therefore, despite the potential for HPL to generate revenue, its stated policy objective is health promotion and obesity reduction.

Section 27 of the Constitution provides, *inter alia*, that "the state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of..." the rights "to have access to health care services..." and "sufficient food and water."[32] However, it has been argued that SSB taxes are actually detrimental to these socio-economic rights, because food expenditure represents a larger share of income for poorer consumers. To illustrate this argument: lower socio-economic groups spend a larger portion of their income on energy-dense, nutrient-poor foods ("EDNPs") than wealthier groups; so unless the tax is on a product that is consumed disproportionately by wealthier socio-economic groups, such a food tax is potentially regressive. In response to these criticisms on regressivity, a number of authors have argued that any regressive impact will be offset by the relatively larger benefits that poorer consumers gain in the long term,

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[28] *Gaertner and Others v Minister of Finance and Others* 2013 ZACC 38 (CC) para 54.
[29] RSA National Treasury *Budget Review* (2016) 10 & 52.
[30] RSA National Treasury *Policy Paper* 2.
[31] 10.
[32] Ss 27(1)(a)-(b) and 27(2) of the Constitution.

because these consumers are disproportionately affected by obesity and NCDs.[33] This argument is not convincing, because certain healthcare services are free for many of these poor consumers, and it is unlikely that the increased prices of SSBs are equally offset in this context.[34] However, because the health issues related to overweight and obesity increase the burden on the health system, the imposition of a tax to reduce consumption and these health concerns will increase the proportion of healthcare funds to treat other health issues, such as communicable diseases.[35]

Another channel through which food excise taxes could promote health is in terms of the strong message it sends to both consumers and manufacturers about the negative health consequences of consuming certain foods or nutrients.[36] In this regard, the *Policy Paper* provides that HPL will also serve an important price-signalling function, which will assist consumers in making more informed decisions regarding the harm of excessive sugar consumption from SSBs.[37] Manyema et al provide that this signalling effect could emphasize the impact on consumption changes, "where changes in purchasing are due to a signal that SSBs are unhealthy and are therefore being taxed rather than the price change itself."[38] However, it could be argued that, where taxes only lead to slight price increases, many consumers might not even notice, and this signalling effect is largely diluted. Awareness campaigns could potentially be used to reinforce the signalling effect, through informing consumers that the tax will be introduced, and clearly explaining the reasoning behind the tax.

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[33] RSA National Treasury *Policy Paper* 10.

[34] SECTION27 *Submission on the Taxation of Sugar Sweetened Beverages Policy Paper* (2016) 11; SECTION27 "Home" (31-10-2019) *SECTION27* <http://section27.org.za/> (accessed 12-11-2019). "SECTION27 is a public interest law centre that seeks to achieve substantive equality and social justice in South Africa. Guided by the principles and values in the Constitution, SECTION27 uses law, advocacy, legal literacy, research and community mobilisation to achieve access to healthcare services and basic education. SECTION27 aims to achieve structural change and accountability to ensure the dignity and equality of everyone."

[35] SECTION27 *Submission on the Taxation of Sugar Sweetened Beverages Policy Paper* 2-5; Ss24(a) and 28(1)(b) of the Constitution. In this regard, SECTION27 provides that HPL is a legislative measure to progressively achieve the realisation of section 27 rights. It is further submitted that taxes on unhealthy foods support other socio-economic rights in the Constitution, including: the section 28 right of children "to basic nutrition" and healthcare services; and the section 24 right "to an environment that is not harmful to... health or wellbeing," because of the influence these taxes have on obesogenic food environments.

[36] Backholer et al (2016) *PHN* 3057.

[37] RSA National Treasury *Policy Paper* 9.

[38] M Manyema, LJ Veerman, L Chola, A Tugendhaft, B Sartorius, D Labadarios & K Hofman "The Potential Impact of a 20% Tax on Sugar-Sweetened Beverages on Obesity in South African Adults: A Mathematical Model" (2014) 9 *PLoS One* 1 8.

3 3 2 Tax policy objectives in comparative jurisdictions

3 3 2 1 Saturated Fat Tax and other taxes on sugary products in Denmark

Denmark implemented taxes on soft drinks since the 1930s ("Soda Tax"), on certain ice cream products ("Ice Cream Tax") since 1948, and on certain chocolate and confectionery products since 1968 ("Chocolate and Confectionery Tax").[39] These taxes were not implemented for health objectives, and were predominantly concerned with revenue generation. According to self-reported OECD data, the prevalence of overweight adults in Denmark increased from 32,3% in 2000 to 33,3% in 2013. Further, self-reported data indicate that the prevalence of obese adults increased from 5,5% in 1987 to 14,2% in 2013.[40] While the prevalence of adult overweight and obesity has increased, these rates are relatively low, and survey data indicate that the prevalence of overweight and obese Danish children has decreased.[41] However, in 2005, the average life expectancy at birth in Denmark was 77,9 years. Although this was an increase from 72,4 years in 1960, the average across OECD countries had increased from 68,5 years to 78,6 years during the same period. The Danish life expectancy at birth was therefore lower and increasing at a slower rate than the OECD average. In 2008, the Danish government set a goal to increase the average life expectancy by three years over the period 2008 to 2018.[42]

As a result, the *Forebyggelseskommissionen* ("Prevention Commission") was established in 2008, and was tasked with analysing and recommending measures to address certain health concerns, in line with the government's goal. Among various

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[39] DK Forebyggelseskommissionen *Vi kan leve længere og sundere– Forebyggelseskommissionens anbefalinger til en styrket forebyggende indsats* (2009) ["We Can Live Longer and Healthier - The Danish Prevention Commission's recommendations for strengthened prevention efforts"]131.

[40] OECD.Stat "Non-Medical Determinants of Health" (08-11-2018) *OECD.Stat* <https://stats.oecd.org/viewhtml.aspx?datasetcode=HEALTH_LVNG&lang=en> (accessed 18-01-2019); OECD *Health at a Glance: Europe* (2016) 99.

[41] OECD *Health at a Glance* (2015) 75; DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 44; OECD/EU *Health at a Glance: Europe 2018: State of Health in the EU Cycle* (2018) 25. In 2002, it was estimated that the prevalence of overweight and obesity was around 12% for 11- and 15- year olds, and around 9% for 13-year-olds. In 2006, it was estimated that this had decreased to around 10% for 11- and 15- year olds, and to around 8% for 13-year-olds. It has been estimated that only around 1% of 13- and 15-year-old Danish children were obese in 2006. With the exception of 15-year-olds, Denmark had one of the lowest rates of overweight and obese children in 2006, compared to other European countries. Further, only around 5% of Danish children aged 7-8 were obese in 2007. This was also low compared to the European average of around 13%.

[42] OECD *Health at a Glance* (2007) 21-23; OECD.Stat "Non-Medical Determinants of Health" *OECD.Stat;* DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 366.

findings, the Prevention Commission estimated that around 4 400 annual deaths were attributable to excessive consumption of saturated fat, and insufficient consumption of fruits and vegetables. In April 2009, the Prevention Commission published recommendations to strengthen preventive efforts against these health concerns ("*Prevention Commission's Recommendations*").[43] The *Prevention Commission' Recommendations* included measures to reduce the prevalence of overweight and obesity and other diet-related health concerns.[44] Among others, the *Prevention Commission's Recommendations* included that: the existing provisions for taxes on sugary products should be reformulated to have a larger effect on consumption; and that a tax on saturated fat could be implemented to discourage excessive consumption of saturated fat.[45] It was also considered in 2008 whether reduced VAT rates should be used to encourage the consumption of healthy foods.[46] As is explained below however, these reduced rates were not adopted for various reasons.[47]

Along with amendments to the existing taxes on soft drinks, ice cream and chocolate and confectionery, a tax on saturated fat ("Saturated Fat Tax") was implemented in 2011.[48] The official primary objective of this tax was to improve health, and the secondary objective was to finance other tax cuts.[49] However, it was widely believed that the primary objective of this tax was to generate revenue to fund

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[43] DK Forebyggelseskommissionen *Vi kan leve længere og sundere– Forebyggelseskommissionens anbefalinger til en styrket forebyggende indsats* (2009) ["We Can Live Longer and Healthier - The Danish Prevention Commission's recommendations for strengthened prevention efforts"].

[44] 5 & 395.

[45] Skat.dk "E.A Punktafgifter" (21-01-2018) *Skat.dk* <https://www.skat.dk/skat.aspx?oid=1921338&vid=214955&ik_navn=breadcrum> (accessed 17-07-2018) ["E.A Excise Duties"]; Forebyggelseskommissionen *Vi kan leve længere og sundere* 94-225. For example, the Prevention Commission recommended that: the rates should be increased for existing food excise taxes on soft drinks, ice cream, chocolate and confectionery; and that the existing tobacco and alcohol taxes should be increased, and stricter rules should be imposed for smoke-free environments.

[46] Skatteministeriet "Nedsat moms på sunde fødevarer" (31-01-2008) *Skatteministeriet* <http://www.skm.dk/skattetal/analyser-og-rapporter/notater/2008/januar/nedsat-moms-paa-sunde-foedevarer> (accessed 19-06-2018) [Reduced VAT on healthy foods].

[47] Discussed below under headings "3 5 2 1 Manufacturer and retailer behaviour" in Chapter 3 and "4 3 2 Differentiated Value-Added Tax rates in the United Kingdom" in Chapter 4 of this thesis.

[48] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* [Act on the taxation of saturated fat in certain foods] § 26.

[49] DK Skatteministere (TL Poulsen) *Lovbemærkninger i Forslag til Lov om afgift af mættet fedt i visse fødevarer (Fedtafgiftsloven), fremsat den 19. januar 2011 af skatteministeren* (2011) [Notes on the Proposal of the Taxation of Saturated Fat in Certain Foods made by the Minister of Taxation].

other tax cuts in the *Forårspakke 2.0* ("*Spring Package 2.0*").[50] The *Spring Package 2.0* was an extensive fiscal reform, with two main objectives: increasing the incentive to work; and improving health and green initiatives. This package contained a number of tax changes to pursue these objectives, but these two main objectives would essentially be achieved by: lowering the tax on labour income; and financing these tax cuts by increasing existing excise tax rates and introducing new excise taxes. It was believed that these measures would boost the economy, increase the labour supply by over 19 000 full-time employees, and improve fiscal stability and health.[51]

3 3 2 2 Public Health Product Tax in Hungary

Hungary had one of the poorest health statuses among OECD countries in 2009, with very high levels of avoidable mortality.[52] In terms of self-reported data, the prevalence of obese Hungarian adults increased from around 18% in 2000, to around 20% in 2008. However, measured data indicate that the prevalence of adult obesity was higher than this, and was recorded to be around 28,5% in 2006.[53] In terms of measured data for children between the ages of 5 and 17 in 2011, 25,9% of females and 25,5% of males were obese.[54] Further, in comparison to other OECD countries in 2011, Hungary had the highest cancer mortality rates, and the second highest ischemic heart disease ("IHD") mortality rates.[55] Along with tobacco and alcohol consumption, unhealthy diets contribute strongly to these issues, and survey data from the period 2007 to 2009 indicate that the average Hungarian diet was high in energy, saturated fat and salt.[56]

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[50] DK Finanministeriet *Aftale mellem regeringen og Dansk Folkeparti om Forårspakke 2.0 – Vækst, klima, lavere skat* (2009) ["Agreement between the Danish Government and the Danish People's Party on the *Spring Package 2.0* - Growth, climate, lower tax"]; Ecorys *Report Annexes* 178; DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 380. The expected increase in life expectancy of 2,92 – 11,31 days is very small, compared to other measures in the *Prevention Commission's Recommendations*. For example, it was estimated that doubling the tax on tobacco would lead to a 3 month increase in life expectancy, and introducing stricter smoke-free environment regulations would increase life expectancy by around 6 months.

[51] DK Finanministeriet *Forårspakke 2.0* 3.

[52] OECD *Health at a Glance* (2009) 16, 23, 25, 35, 53, 55 & 57.

[53] OECD/EU *Health at a Glance: Europe 2018* 127; OECD *Health at a Glance: Europe* (2010) 65.

[54] OECD *Health at a Glance* (2011) 57.

[55] OECD *Health at a Glance* (2013) 29 & 32. Although the mortality rates from cancer had decreased by 12% in Hungary since 1990, the average cancer mortality rates in the OECD had decreased by 14% during the same period. Similarly, the Hungarian mortality rates from IHD only decreased by 6% since 1990, compared to the average decrease of 42% among OECD countries.

[56] A Biro "Did the junk food tax make the Hungarians eat healthier?" (2015) 54 *Food Policy* 107 114; P Gaál, S Sziget, M Csere, M Gaskins & D Penteli "Hungary: Health System Review" (2011) 13

As the prevalence of these health issues increases, so does the need for medical treatment and healthcare funding.[57] Further, Hungary was affected significantly by the 2008 global financial crisis, and sustained a 6,7% decrease in GDP in 2009.[58] After 2008, the Hungarian income tax system was restructured, which led to a HUF 100 billion decrease in healthcare funding.[59] This led to a healthcare workforce crisis, due to relatively low wages of healthcare professionals, migrating workers and ageing healthcare personnel.[60] By 2010, Hungary faced one of the worst recessions among OECD countries, and its budget deficit was increasing.[61] Against this background of the budget deficit, poor diet, increasing health concerns and the healthcare workforce crisis, a number of legislative and tax changes were implemented, which included the introduction of the Public Health Product Tax ("PHPT").[62]

The PHPT was approved by the Hungarian parliament in July 2011, and came into effect in September 2011.[63] According to the Hungarian Ministry of Taxation, the PHPT was implemented to pursue health objectives and generate revenue to finance public health services, particularly health programmes.[64] Accordingly, the revenue generated by the PHPT accrues to the Health Insurance Fund ("HIF"), but PHPT taxpayers may elect to pay up to 10% of the PHPT amount to a specific healthcare programme, to a maximum of HUF 100 000.[65] It was further provided that any

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Health Systems in Transition HiT xvii; WHO "Healthy Diet" *WHO*; WHO Regional Office for Europe *Nutrition, Physical Activity and Obesity Hungary* (2013) 2-3. During the period 2007-2009, it was estimated that Hungarians consumed 12,1g-17,5g of salt/sodium per day, and that saturated fat represented 11,8% of total energy intake. These intakes exceed the WHO's recommendations that saturated fat should not comprise more than 10% of energy intake, and that daily sodium consumption should be less than 2000mg (5g salt). Hungarians also consumed slightly less than the daily recommended intake of fruits and vegetables: 597g per day, compared to the WHO's daily recommended minimum of 600g per day.

[57] Gaál et al (2011) *HiT* xxi. Public healthcare expenditure in Hungary is funded by tax revenues and social contributions.

[58] xix.

[59] Ecorys *Report Annexes* 212.

[60] Gaál et al (2011) *HiT* xxii.

[61] OECD *OECD Economic Surveys: Hungary* (2010) 19.

[62] *2011. évi CIII. Törvény a népegészségügyi termékadóról.*

[63] E Holt "Hungary to introduce broad range of fat taxes" (2011) 378 *Lancet* 755 755; *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 12.

[64] *2011. évi CIII. Törvény a népegészségügyi termékadóról* preamble.

[65] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(19), 8(6)(a) & 11; E Tamás "a népegészségügyi termékadó (neta) egészségmegőrző programok költségeivel való csökkentéséről" (25-03-2016) *A Nemzeti Adó- és Vámhivatal* <http://online.kpr.hu/uploaded-files/2016/03/0-56fb96cf52b13.pdf> (elérhető 27-11-2018) ["Reducing the cost of public health node healthcare programs"]. The Health Insurance Fund is funded by the revenue collected from the PHPT and from the accident tax.

improvement to the nutritional quality of Hungarians' diets would be regarded as a successful result of the PHPT. The PHPT was intended to further health objectives by influencing: consumers to reduce their consumption of unhealthy nutrients, and choose healthier alternatives; and manufacturers to reformulate their food products to be healthier.[66] The majority of consumers believed that the objective of the PHPT was to improve public health and prevent the increase of the relevant health concerns by encouraging healthy diets and reducing the consumption of unhealthy foods. According to the survey data from a study done by the National Institute for Health Development (*"NIHD Assessment"*)[67] however, in addition to this objective: around 55% of consumers believed that the objective of PHPT was to improve the government's budget deficit; and only around 28% of consumers believed that PHPT sought to finance public health programmes.[68]

3 3 2 3 Soft drinks taxes and Junk Food Tax in Mexico

In January 2002, Mexico introduced a tax on the transfer or importation soft drinks and syrups containing sweeteners other than cane sugar ("2002 Mexican Sweetener Tax").[69] This tax was not imposed for revenue generation nor health promotion, but to protect the domestic sugar cane industry.[70] In 2004, the United States of America ("USA") argued that this tax was in conflict with international trade agreements prohibiting unequal tax treatment between similar domestic and international products.[71] The USA successfully argued that, because 95% of Mexican sweetener production was cane sugar, and because 100% of Mexico's sweetener imports from

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[66] Ecorys *Report Annexes* 214; F Varga "A népegészségügyi termékadó" (15-12-2015) *Egzatik Szakkiadó* <http://online.kpr.hu/t/a-nepegeszsegugyi-termekado.php> (accessed 26-11-2018) ["Public Health Product Tax"]

[67] NIHD *Public Health Product Taxes Impact Assessment* (2013) 1.

[68] 12.

[69] WTO *Mexico- Tax Measures on Soft Drinks and Other Beverages* Report of the Panel WT/DS308/R (2005) 5. This tax also applied to distributions of these products.

[70] 13 & 21. There had been rapid growth in the Mexican sugar cane industry, and there was a surplus of cane sugar. However, due to a trade agreement between Mexico and the USA, there was a limit in terms of how much sugar cane could be exported duty-free. In order to re-balance the surplus, Mexico introduced this tax to increase the demand for local sugar cane, and decrease the demand for other imported sweeteners, such as beet sugar and HFCS.

[71] Art III of the General Agreement on Tariffs and Trade 1994. In terms of this agreement, imported products "shall not be subject, directly or indirectly, to internal taxes... of any kind in excess of those applied, directly or indirectly, to like domestic products." Further, imported products "shall be accorded treatment no less favourable than that accorded to like products of national origin." Lastly, a tax "would be considered to be inconsistent... only in cases where competition was involved between, on the one hand, the tax product and, on the other hand, a directly competitive or substitutable product which was not similarly taxed."

the USA were high-fructose corn syrup ("HFCS"), this tax amounted to dissimilar taxation of "directly competitive or substitutable imports," accorded favourable treatment "to like products of national origin," and thus did not comply with the existing international taxation framework.[72]

Since 2002, the prevalence of obesity and obesity-related NCDs has increased noticeably in Mexico. In 2000, around 24,2% of Mexican adults were obese. At this stage, Mexico had the second-highest prevalence of obesity among OECD countries; the USA ranked first, with 30,9% of adults classified as obese.[73] By 2015, the prevalence of obese adults in Mexico had increased to 33,3%. At this stage, Mexico was still second to the USA in terms of obesity, but the total proportion of overweight and obese adults combined had overtaken that of the USA: 72,5% of Mexican adults were overweight or obese, which comprised 33,3% obese and 39,2% overweight adults; compared to 38,2% obese and 31,9% overweight American adults and 31,9% overweight adults, for a total of 70,1% overweight and obese American adults.[74] In 2011, Mexico also had the highest prevalence of Type 2 Diabetes Mellitus ("T2DM") among OECD countries.[75] Further, during the period 2007 to 2013, Mexicans consumed around 159,5 litres of SSBs and 49,6 litres of bottled water per person per year on average.[76] By 2014, Mexico's SSB consumption had overtaken that of the USA, and Mexico had the world's second-largest daily calorie consumption from SSBs.[77]

It was estimated that: in 2011, NCDs accounted for 78% of all deaths in Mexico, including T2DM, respiratory diseases, cancers, cardiovascular diseases ("CVD") and other NCDs; and in 2008 that obesity-related diseases accounted for MXN 42 billion in direct healthcare expenditure, which constituted 13% of total Mexican healthcare

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[72] WTO *Mexico- Tax Measures on Soft Drinks* 132, 138 & 162; Article III of the General Agreement on Tariffs and Trade, 1994. The Panel found that this 2002 Mexican sweetener tax amounted to dissimilar taxation of "directly competitive or substitutable imports," accorded favourable treatment "to like products of national origin," and thus did not comply with the existing international taxation framework. Accordingly, the Panel requested that Mexico amend the legislation to conform with the General Agreement on Tariffs and Trade, 1994.

[73] OECD *Health at a Glance* (2003) 75.

[74] OECD *Health at a Glance* (2017) 81.

[75] OECD *Health at a Glance* (2011) 42 55 & 57. Further, around 29% of Mexican children were overweight or obese in 2011.

[76] Statista "Per capita sales of sugar-sweetened beverages and water in the pre- and post- tax period in Mexico from 2007 to 2015 (in liters per person)" (2016) *Statista* <https://www.statista.com/statistics/726867/sugar-sweetened-drinks-and-water-sales-per-capita-before-and-after-tax-in-mexico/> (accessed 20-03-2019).

[77] Popkin & Hawkes (2016) *Lancet Diabetes Endocrinol* 179. In 2014, the largest daily calorie consumption from SSBs was in Chile.

expenditures.[78] These diseases were also estimated to account for MXN 25 billion in indirect costs as a result of decreased productivity. It was predicted that these costs would increase to MXN 78 to 101 billion in direct costs, and MXN 73 to 101 billion in indirect costs annually by 2017 if cost-effective, inter-sectoral prevention measures were not implemented. Accordingly, the Mexican Ministry of Health formulated a strategy to address obesity and T2DM ("*Mexican Strategy*"),[79] which identified a number of effective measures, including a tax on SSBs.[80]

In addition to a tax on certain flavoured non-alcoholic beverages containing added sugars ("Flavoured Drinks Tax"),[81] a tax on certain non-essential food products ("Junk Food Tax")[82] was passed in December 2013. The Flavoured Drinks Tax and the Junk Food Tax have been implemented since January 2014.[83] Unlike the Mexican 2002 Sweetener Tax, the Flavoured Drinks Tax does not differentiate between cane sugar and HFCS: the beverages targeted by the Flavoured Drinks Tax are defined as flavoured, non-alcoholic beverages made through dissolving any type of sugar in water; and the description of sugar includes calorific sugar sweeteners, such as monosaccharides, disaccharides and polysaccharides.[84] The Flavoured Drinks Tax was therefore implemented in order to discourage the consumption of a broad range of dietary sources of added sugars in the relevant SSBs, and thereby reduce excessive energy intake in line with obesity and NCD reduction. Other measures outlined in the *Mexican Strategy* include measures aimed at: increasing fruit and vegetable consumption; improving decision-making through labelling requirements; reducing the marketing of unhealthy foods; and decreasing the consumption of sugar, sodium and saturated fats.[85] According to a decree, the revenues collected from the Flavoured Drinks Tax must be allocated to: programmes

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[78] WHO *Noncommunicable Diseases Country Profiles* (2011) 124; A Martínez Moreno, A López Espionoza & P López Uriarte *Mexico Obeso: Actualidades y perspectivas* (2015) 20.

[79] México Secretaría de Salud *Estrategia Nacional para la Prevención y el Control del Sobrepeso, la Obesidad y la Diabetes* (2013) ["Mexican Ministry of Health's National Strategy for the Prevention and Control of Overweight, Obesity and Diabetes"].

[80] 20.

[81] Art 2(I)(G) *de la Ley del Impuesto Especial Sobre Producción Servicios, vigente desde 1980 (texto vigente: Última reforma publicada DOF 15-11-2016*) [Special Tax Law on Production Services, 1980 (Last reform published DOF 11-15-2016)].

[82] Art 2(I)(J).

[83] WCRF *Use economic tools* 6; Art 2(I)(A)-(F) *de la Ley del Impuesto Especial Sobre Producción Servicios*.

[84] Arts 3(XVIII) & 3(XX) *de la Ley del Impuesto Especial Sobre Producción Servicios.*

[85] México Secretaría de Salud *Estrategia* 61; WCRF *Offer healthy food* 10; WCRF *Nutrition label standards* 8-9; WCRF *Restrict food advertising* 2.

aimed at promoting, detecting, treating and preventing malnutrition, overweight and obesity and related NCDs; and the provision of water services in rural areas and water fountains public schools.[86]

3 3 2 4 Philadelphia Beverage Tax

Contrary to the argument by Hernández-Quevedo and Weatherly that incentivising manufacturers to reformulate their products is an indirect primary objective and that revenue generation is a secondary objective, recent developments such as the Soft Drinks Industry Levy ("SDIL") in the United Kingdom ("UK") and the Philadelphia Beverage Tax ("PBT") indicate that these could be the direct primary objectives.[87] These taxes have been formulated differently from previous SSBs taxes in line with their objectives, as is further discussed below.[88] In January 2017, Philadelphia became the first large city in the USA to implement an SSB tax.[89] Philadelphia is the fifth largest city in the USA, and has one of the highest poverty rates.[90] The newly-elected Mayor, Jim Kenney, framed the PBT as a useful revenue source to fund investment programmes.[91] Mayor Kenney, emphasized the tax's potential to generate additional revenue, and did not focus on health objectives. Mayor Kenney stated that the revenues generated could be used to: develop community amenities, such as libraries and parks and recreation centres; and fund a universal education system for pre-kindergarten ("pre-K") children in Philadelphia.[92] According to Purtle et al:

> "The mayor's administration deliberately framed the SSB tax as a strategy to finance universal pre-kindergarten and improvements to recreational facilities- not as a health intervention. Interviewees expressed that the non-health frame shifted the policy debate away from contentious arguments about government involvement in individual behaviour to discussions about how to finance investments in youth and communities-goals for which broad support existed. Interviewees cited a poll conducted during the policymaking process that found that 84% of Philadelphians felt that universal pre-kindergarten was "very important." The non-health frame also allowed a wide range of

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[86] *Sexto Art Transitorios de la Decreto de fecha 15 noviembre de 2016 por el que se expide la Ley de Ingresos de la Federación para el Ejercicio Fiscal de 2017* [Sixth Transitory Article of the Decree issuing the Federation's Income Law for the Fiscal year of 2017, dated 15 November 2016].

[87] Hernández-Quevedo & Weatherly "Health promotion" in *Promoting Health, Preventing Disease* 261.

[88] Discussed below under headings "4 2 1 Overview of comparative jurisdictions" and "4 4 Taxes targeting sugar-sweetened beverages" in Chapter 4 of this thesis.

[89] Philadelphia, Pa., Municipal Code § 19-4103(1); Jerrett (2018) *FDLJ* 473. The Philadelphia City Council voted 13-4 in favour of this tax.

[90] WCRF *Building momentum* 26.

[91] D Cuellar "Philadelphia City Council Passes Beverage Tax with 13-4 Vote" (17-06-2017) *6ABC News* <https://6abc.com/news/philadelphia-city-council-passes-beverage-tax-/1388228/> (accessed 15-04-2019).

[92] Jerrett (2018) *FDLJ* 480.

> research findings to enter the policy debate. Interviewees and news articles cited research about the long-term benefits of pre-kindergarten on education outcomes and associated cost savings. This contributed to the SSB tax proposal being perceived as an evidence-based education policy that would increase levels of educational attainment and improve the social and economic trajectories of low-income Philadelphia youth." [93]

3 3 2 5 Soft Drinks Industry Levy in the United Kingdom

In 2009, 25% of adults were obese in the UK.[94] Further, it was estimated that 52,4% of the UK population consumed SSBs once per week in 2008, and that males and females respectively consumed 62g and 22g of SSBs per day.[95] The SDIL was proposed in March 2016, following a report published by the UK Scientific Advisory Committee on Nutrition, recommending that the consumption of SSBs should be reduced due to the associations between SSB consumption, dental caries, weight gain, and increased risk of T2DM.[96] Taxes on unhealthy foods and non-alcoholic beverages have predominantly been focused on health improvements through influencing consumer behaviour, while acknowledging that product reformulation could complement the health outcomes. However, because of the perception that these taxes are regressive, the SDIL was the first SSB tax specifically formulated to encourage product reformulation.

The SDIL came into effect in April 2018 in the UK.[97] The UK government has expressly appealed to the soft drinks industry to reformulate their products instead of passing on the increased prices to consumers, in order to reduce sugar consumption and minimise regressivity. According to Her Majesty ("HM") Revenue and Customs:

> "Public Health England and the Chief Medical Officer have said that reformulation and smaller portion sizes are key for reducing sugar intakes. This is at the centre of the government's Childhood Obesity Plan, and Public Health England's sugar reduction programme... The Soft Drinks Industry Levy encourages producers to: (i) reduce added sugar content in drinks; (ii) market low sugar alternatives, and (iii) reduce portion sizes for high sugar drinks. All responses will reduce levy liability... The *primary*

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[93] J Purtle, B Langellier & F Lê-Scherban "A Case Study of the Philadelphia Sugar-Sweetened Beverage Tax Policymaking Process: Implications for Policy Development and Advocacy" (2018) 24 *JPHMP* 4 5.

[94] OECD *Health at a Glance* (2011) 9.

[95] J Jou & W Techakehakij "International application of sugar-sweetened beverage (SSB) taxation in obesity reduction: Factors that may influence policy effectiveness in country-specific contexts" (2012) 107 *Health Policy* 83 87.

[96] Scientific Advisory Committee on Nutrition *Carbohydrates and Health* (2015) 96.

[97] ADM Briggs, OT Mytton, A Kehlbacher, R Tiffin, A Elhuissein, M Rayner, SA Jebb, T Blakely & P Scarborough "Health impact assessment of the UK soft drinks industry levy: a comparative risk assessment modelling study" (2017) 2 *Lancet Public Health* e15 e15.

aim of the SDIL is to encourage producers to remove added sugar from soft drinks." (emphasis added)[98]

The revenues collected from the SDIL are earmarked for breakfast clubs and physical activity in schools. Specifically, revenue from the SDIL "will be used to: double the primary school PE and sport premium from £160 million per year to £320 million per year... provide up to £285 million a year to give 25% of secondary schools increased opportunity to extend their school day to offer a wider range of activities for pupils, including more sport;" and "provide £10 million funding a year to expand breakfast clubs in up to 1,600 schools... to ensure more children have a nutritious breakfast as a healthy start to their school day."[99]

3 3 3 Adam Smith's Canons of taxation

There are a number of overlapping criteria for assessing taxes, which can be summarised in terms of Adam Smith's canons for a good tax system: equality; certainty; convenience; and economy.[100] Although it is difficult to satisfy each of these criteria, it is important for tax laws to strike an appropriate balance between these principles in order to be effective and sustainable. As is further discussed below, if these taxes are not sustainable, their impact on health outcomes is limited.[101] For example, the SSB tax in Ecuador was challenged because it did not clearly define which products were subject to the tax, and was difficult to implement.[102] In this regard, the certainty principle provides that the amount of tax payable, the time of payment and the manner of payment should be clear. In terms of the convenience principle, tax laws should be simple to understand, and should be charged in the most convenient manner for taxpayers.[103]

In terms of the equality principle, taxpayers should contribute taxes according to their ability to pay, the tax burden should be distributed fairly and equitably, and the regressive impact of taxes should be minimised.[104] In terms of this principle, there should be horizontal equity and vertical equity. Horizontal equity requires that taxpayers with the same ability to pay should pay the same amount, and vertical equity requires that taxpayers with different abilities to pay should be taxed

[98] UK HM Revenue & Customs *Soft Drinks Industry Levy: Summary of Responses* (2016) 4 & 7.
[99] UK HM Treasury *Budget* (2016) 33.
[100] A Smith *An Inquiry into the Nature and Causes of the Wealth of the Nations* (1843) 347-348.
[101] Discussed below in Chapter 5 of this thesis.
[102] WCRF *Building momentum* 21.
[103] Smith *Wealth of the Nations* 347.
[104] 347.

differently.[105] Overall, in line with redistribution goals, taxes should not cause a larger degree of inequality between lower and higher socio-economic groups.[106] However, it is not necessary for each tax in a tax system to be progressive, because there is a broad range of political and economic factors that influence redistribution within the tax and benefit system.[107]

The most important consideration when discussing the regressive impact of taxes on unhealthy foods and non-alcoholic beverages is the extent to which consumers respond to these taxes. These taxes are probably regressive if consumption of the targeted products does not decrease, or if overall dietary quality does not improve.[108] In response to the argument that the regressive impact on poorer consumers will be offset by disproportionate long-term health improvements, HPL's impact will be regressive unless positive consumption changes and long-term health improvements actually materialise.[109] Further, in response to the argument that health improvements as a result of HPL will increase the available funding for other health issues, which will benefit lower socio-economic groups: HPL's impact will still be regressive unless: the health improvements as a result of consumption changes materialise; and the government actually increases healthcare expenditure for these other health issues.[110]

In order for a tax system to be respected, taxpayers should regard it as fair, and perceive the outcome of the tax to be legitimate. In this regard, it is important for there to be fairness in terms of equality, and also in terms of procedure and the legitimate expectations of the taxpayers.[111] Tax laws need to be formulated in terms of the legal framework, and should be transparent and consistent, otherwise they might be challenged.[112] For example, the 2002 Mexican sweetener tax was in

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[105] Muller *A Framework* 37; Cnossen "Introduction" in *Excise Tax Policy and Administration* 2; WHO *Global Strategy* para 41(2). The WHO provides that policymakers should consider any unintentional effects that food excise taxes might have on vulnerable groups.
[106] Cnossen "Introduction" in *Excise Tax Policy and Administration* 2.
[107] Muller *A Framework* 37-39.
[108] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" (10-02-2017) *Wharton University of Pennsylvania* <http://knowledge.wharton.upenn.edu/article/do-sin-taxes-really-change-consumer-behavior/> (accessed 07-11-2018).
[109] Jeffery *A Stealth Tax* 1; RSA National Treasury *Policy Paper* 10.
[110] The earmarking of tax revenues is discussed further under heading "3 4 2 1 Earmarked taxes and public support" of this thesis below.
[111] Mirrlees et al *Tax by Design* 33.
[112] 35.

conflict with the certainty principle.[113] Although most taxes will not be regarded as fair from all perspectives, it is particularly important for legislators to be transparent about the objectives of a tax where there is potential for opposition. If there is insufficient transparency regarding the underlying rationale for a tax, it could lead to a lack of legitimacy, and increase the potential for lobbying and non-compliance.[114]

Lastly, in terms of the economy principle, taxes should not discourage economic activity: the procedures for collecting taxes should be efficient; and administrative and compliance costs of taxes should be minimised.[115] Taxes are simpler and more administratively efficient where the number of taxpayers is limited. The writers of the *Policy Paper* provide that administrative and compliance costs are minimised when the number of taxpayers is limited, and the Duty-At-Source ("DAS") principle is applied.[116] Further, where food excise taxes are imposed on the manufacturers, administrative costs are reduced, because these taxpayers are likely to already be registered for other tax purposes, such as VAT.[117] In terms of the economy principle, taxes should also be neutral, and not unduly influence economic decisions.[118] In addition to the certainty principle, the 2002 Mexican sweetener tax was also in conflict with the economy principle: because the prices of HFCS became relatively more expensive than cane sugar after the tax's implementation, those Mexican SSB manufacturers using HFCS were influenced to change to locally-produced cane sugar.[119] Where taxes do not have a neutral effect, they are usually also more complicated. A lack of neutrality and simplicity creates more opportunities for tax avoidance, which usually results in more complex anti-avoidance laws. Where tax laws need to be continually revised in this regard, there is an increase in

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[113] WTO *Mexico- Tax Measures on Soft Drinks* 132, 138 & 162; Article III of the General Agreement on Tariffs and Trade, 1994. Kindly refer to the discussion above under heading "3 3 2 3 Soft drinks taxes and Junk Food Tax in Mexico" of this thesis. In terms of Art III of the General Agreement on Tariffs and Trade, 1994, imported products could not be subject to direct or indirect internal taxes that caused them to be more expensive than similar domestic products. The majority of Mexico's sweetener production was cane sugar, and the majority of sweetener imports from the USA were HFCS. Because of this, the tax accorded favourable treatment to similar, Mexican products, over imports from the USA.

[114] Mirrlees et al *Tax by Design* 35.

[115] Smith *Wealth of the Nations* 348.

[116] RSA National Treasury *Policy Paper* 15.

[117] Mann (2017) *Environmental Law* 722; WCRF *Building momentum* 13.

[118] Cnossen "Introduction" in *Excise Tax Policy and Administration* 2.

[119] WTO *Mexico- Tax Measures on Soft Drinks* 162.

administrative and compliance costs. This ultimately results in direct losses to the revenue authorities, as well as losses to society.[120]

When formulating tax laws, trade-offs will need to be made between these principles, but it is important for there to be strong justifications for these tradeoffs. For example, governments impose taxes on certain harmful products because they are not neutral about the negative health effects caused by these products. In this case, the policy objective is reprising, and departure from the neutrality principle may be justified.[121] In the light of the argument that food excise taxes are not regressive because they result in disproportionate health improvements for lower socio-economic groups for example: the progressive health outcomes will depend on the extent to which the tax leads to health improvements compared to the potentially negative impact on these other objectives. For example, a food excise tax on an extensive range of food products was considered in Romania in 2010. This tax was not implemented, because it was considered to be too regressive, and would only achieve slight changes in consumption and health; the trade-off between redistributive goals and consumption changes was not considered to be justifiable in this case. It has been cautioned that governments should carefully assess the equity effects of such fiscal policies, as many studies have found these taxes to be regressive.[122] Where these taxes are implemented, it is important to incorporate a monitoring and evaluation framework so that the long-term impact on other objectives can be investigated.[123]

3 4 Conflict between tax objectives

3 4 1 Revenue generation or reprising objectives

As provided by Hernández-Quevedo and Weatherly, most taxes on unhealthy foods pursue similar health outcomes, but there are a number of channels through which these outcomes are achieved: through increased prices to the consumer, and a corresponding decrease in demand and consumption; through the incentive to manufacturers to minimise their tax liability and reformulate their products in line with

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[120] Mirrlees et al *Tax by Design* 42.
[121] 43.
[122] Holt (2011) *Lancet* 755. This tax in Romania would have targeted soft drinks, snacks, confectionery and fast food products. Among others, this planned tax faced strong opposition from the Food Industry Federation, which estimated that it would result in 36 000 job losses.
[123] WCRF *Building momentum* 10; Backholer et al (2016) *PHN* 3059.

the consumption changes pursued by policymakers; through revenue generation and increased spending on certain health initiatives; and through the signalling effect to consumers and manufacturers.[124] The objectives of health promotion and revenue generation are not necessarily in conflict with each other. More specifically, however, the following objectives might be in conflict with each other: increased revenue as a result of long-term health improvements and increased expenditure on other health concerns; and increased revenue in the short term to fund health projects.

Certain authors argue that the amount by which a food excise tax increases the prices of the targeted products is indicative of whether its objective is predominantly reprising or revenue generation.[125] While any price increase might decrease demand and incentivise product reformulation, significant changes are only observed when prices are increased by a considerable amount. In this way, the objectives of revenue generation and health promotion might be in conflict with each other.[126] Because of this conflict, it is important for policymakers to clearly identify the tax's objective and formulate the tax's provisions accordingly.[127] Lower tax rates usually enhance the predictability of the tax revenue to be collected, because they result in a smaller change in consumption patterns.[128] Where the tax is specifically formulated to influence consumption and consumption is effectively deterred however, the revenue collected should rather be used for short-term projects that rely on once-off funding, instead of on-going health projects that will rely on inconsistent revenues. In addition to enhancing their effectiveness, clearly formulating these taxes in terms of reprising or revenue generation will increase the strength of the signalling effect and public support.[129]

3 4 2 Use of tax revenue

3 4 2 1 Earmarked taxes and public support

The OECD follows a similar definition of "tax" to the one provided in *Shuttleworth*, where the Constitutional Court provided that it is characteristic of a tax that the

[124] Hernández-Quevedo & Weatherly "Health promotion" in *Promoting Health, Preventing Disease* 261.
[125] A Wright, K Smith & M Hellowell "Policy lessons from health taxes: a systematic review of empirical studies" (2017) 17 *BMC Public Health* 1 1.
[126] Jerrett (2018) *FDLJ* 480.
[127] Wright et al (2017) *BMC Public Health* 1.
[128] 11.
[129] Jerrett (2018) *FDLJ* 480.

taxpayers do not receive any particular service in return for payment.[130] Despite this, a number of jurisdictions have hypothecated or "earmarked" certain tax revenues for specific purposes.[131] Public and political opposition to a tax reform could potentially be reduced if the relevant taxes are earmarked, in terms of which the collected revenue is dedicated to a specific fund or expenditure purpose.[132] In this way, the earmarking of revenues from a tax reform could improve the sustainability of tax reforms.[133] Backholer et al provide that:

> "In order to improve the design and evaluation of SSB taxation policies... mechanisms should be developed for earmarking of revenue to additional population prevention health related strategies. This is likely to garner greater public support and result in greater population health benefits. Earmarking of revenue may be achieved through the direction of revenue to a newly generated health fund or through the allocation of revenue to a general budget, with a corresponding commitment to increase governmental spending on health-related activities. Although the allocation of revenue to a separate fund is more likely to result in funds being spent on population prevention interventions, this may not be administratively possible for some countries."[134]

The primary health objective of food excise taxes could be enhanced where the collected revenue is dedicated to some related health project or initiative targeting obesity and NCDs.[135] For example, the tax revenue collected from the PHPT in Hungary has been used to increase the wages of health sector workers.[136] Further, the revenue generated from the SDIL is "invested in giving school-aged children a brighter and healthier future, including programmes to encourage physical activity and balanced diets."[137] There is also provision for the revenue collected from the Flavoured Drinks Tax in Mexico to be allocated to programmes aimed at: addressing overweight, obesity, malnutrition and chronic degenerate diseases; increasing access to drinking water services; and providing public school buildings with drinking

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[130] RSA National Treasury *A Framework for Considering Market-Based Instruments to Support Environmental Fiscal Reform in South Africa Draft Policy Paper* (2006) 122.

[131] Part 5B of Schedule No. 1 of the Customs and Excise Act and RSA National Treasury *A Framework for Considering Market-Based Instruments* 66; S3 of the Road Accident Fund Act 19 of 2005. For example, a portion of the tax revenues collected from certain fuel products in South Africa accrues to the Road Accident Fund, from which road accident victims are compensated.

[132] Wright et al (2017) *BMC Public Health* 10-11.

[133] O Doetinchem *Hypothecation of tax revenue for health* World Health Report, Background Paper 51 (2010) 4.

[134] Backholer et al (2016) *PHN* 3059.

[135] Wright et al (2017) *BMC Public Health* 10.

[136] WHO Regional Office for Europe *Assessment of the Impact of a Public Health Product Tax Final Report* (2015) 18.

[137] HM Treasury, HM Revenue & Customs & Department of Health and Social Care "Soft Drinks Industry Levy: 12 things you should know" (18-08-2016) *GOV.UK* <https://www.gov.uk/government/news/soft-drinks-industry-levy-12-things-you-should-know> (accessed 05-09-2019).

fountains and a continuous supply of drinking water.[138] However, this revenue accrues to the general budget, and there is little evidence that any of it is used for these health programmes.[139]

Earmarking could also be used to direct funds back to lower socio-economic consumers in order to mitigate the regressive impact of the tax, through: subsidizing healthy foods; providing cash rebates; or funding projects that provide disproportionate benefits to lower socio-economic groups that bear a large portion of the economic burden of the tax.[140] Due to the potentially regressive effects and negative impact on the sugar industries and employment, it has been argued that at least a portion of the revenue collected from the HPL should be earmarked in order to mitigate these effects.[141] However, the *Final Response Document* provides that the revenue collected from all taxes accrues to the National Revenue Fund ("NRF"), and that the designation of HPL revenue for health promotion would place undue constraint on the budgeting process:

> "All tax revenues accrue to the National Revenue Fund for general government expenditure, as per determined priorities, however there is a commitment for budgetary support for health promotion programmes identified by the NDOH. The legislative earmarking of revenue is not supported as it will introduce rigidities in the budgeting process. SA government has committed to increasing investments in health promotion targeting NCDs and has published this commitment in Treasury documents and international WHO publications."[142]

It could be argued that this response is not satisfactory. However, it is not an unreasonable response, because it is more complicated for the government to budget where tax revenues are earmarked. These increased complexities could ultimately be detrimental to the government's ability to pursue other objectives, such as the equitable distribution of resources.[143] In the context of environmental taxes, the RSA National Treasury provided that:

> "Generally speaking, there are no clear-cut criteria to dictate when revenue hypothecation is appropriate or not. As a rule, the full earmarking of selected tax revenues is not a preferred option due to the constraints placed on the budget process and the rigidities that tend to follow from earmarking lead to the inappropriate

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[138] *Decreto por el que se expide la Ley de Ingresos de la Federación para el Ejercicio Fiscal de 2017 en la Diario Oficial* 15-11-2016 ["Decree issuing the Federation's Income Law for the Fiscal Year of 2017 in the Official Gazette 15-11-2016"].

[139] Backholer et al (2016) *PHN* 3057.

[140] Jerrett (2018) *FDLJ* 479.

[141] RSA National Treasury & SARS *Final Response* 5.

[142] S12(1) of the Public Finance Management Act 1 of 1999; RSA National Treasury & SARS *Final Response Document* 11. SARS is required to promptly deposit all revenue from taxes, duties, levies and fees into the NRF.

[143] Doetinchem *Hypothecation of tax revenue* 5.

> allocation of resources. Earmarking practices may also limit the extent to which environmentally-related tax revenues can be used as part of a possible tax shifting exercise. Requests for earmarking will, therefore, have to be evaluated on a case-by-case basis, with on budget funding through the normal budgetary process being the first best option. As a second best alternative, the partial or soft earmarking of tax revenues could be considered in that revenues will have to flow via the fiscus with the procision that special consideration be given to fund certain activities but with no fixed commitment to allocate all the revenues from a specific source to such activities."[144]

The RSA National Treasury is therefore not generally in favour of strict earmarking policy. However, while governments should ideally be able to make political decisions independently from expenditure decisions, the popularity of these taxes could still be greatly improved where the expenditure is directly connected to the purpose of the tax.[145] Taxpayers are less likely to support a tax where they do not benefit from the revenue collected.[146] Particularly where public confidence is limited, it might be favourable to earmark the revenue from taxes on unhealthy foods and beverages.[147] Even though the revenue would otherwise accrue to the particular jurisdiction's general revenue fund, and a portion would be used for the relevant objective, the earmarking of the revenue could increase the transparency of the tax reform.[148]

Another issue with earmarked taxes in this regard is: where food excise taxes effectively reduce consumption by a considerable amount, the revenues collected are unpredictable. Where a certain health project is funded by this type of unstable earmarked revenue, it is much more difficult to plan, and less efficient at achieving its health promotion objectives.[149] In order to offset the unpredictable nature of these revenues, some argue that earmarking should be accompanied by a commitment by the relevant government to maintain the increase in expenditure on the particular cause. Some argue that the use of partial earmarking might mitigate some of the disadvantages associated with full earmarking. In terms of partial earmarking, there is an association between a tax reform and an overall increase in government expenditure on a particular programme, but there is no strict assignment of these funds, and the government's flexibility is not constrained.[150]

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[144] RSA National Treasury *A Framework for Considering Market-Based Instruments* x.
[145] Mann (2017) *Environmental Law* 722.
[146] M Van Oordt *The Influence of Social Ties on Taxation* unpublished paper, 12-05-2019 (available at <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3370907>) 21.
[147] RSA National Treasury *A Framework for Considering Market-Based Instruments* 102.
[148] 119.
[149] Wright et al (2017) *BMC Public Health* 10.
[150] RSA National Treasury *A Framework for Considering Market-Based Instruments* 102.

3 4 2 2 Lobbying in the United States of America

The direct costs of obesity and obesity-related NCDs are significant in the USA, where it has been estimated that annual medical expenditures could be reduced by between 7% and 11% if obesity were eliminated.[151] As discussed above, in order to improve diets and health, a number of interventions have been used at various levels of government in the USA.[152] Because these health interventions threaten commercial interests, the food and beverage industry allocates substantial resources to influence these policies.[153] For example, Coca-Cola, PepsiCo and the American Business Association alone spent around $114,2 million on lobbying in the USA during the period 2009 to 2015.[154] In addition to other efforts, pre-emption laws have been used by lobbyists to prevent the implementation of certain nutrition-based regulations. For example, pre-emptive laws were enacted in 26 states during the period 2003 to 2013, in terms of which governments cannot litigate on claims that diets cause obesity and obesity-related NCDs, or make laws where litigation is provided as a remedy in such a case. Further, during the period 2008 to 2018, twelve states enacted pre-emptive laws on nutritional labels, portion size regulations, taxes, marketing and the sale and distribution of food and non-alcoholic beverages. For example, local governments within the state of Ohio are pre-empted form regulating consumer incentive items and the provision of nutritional information at restaurants.[155]

A federal SSB tax was proposed in the 1980s, in order to raise revenue, and not to promote health objectives. However, lobbying efforts by the SSB industry lead to the dismissal of this tax.[156] Under the Obama Administration in 2010, a federal SSB tax was again considered. However, there were lobbying efforts by a coalition of SSB industry members, SSB suppliers and SSB mass-marketers. Due to these efforts, the Senate Finance Committee only considered the proposal briefly before

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[151] Min (2013) *JLPP* 197.
[152] Discussed above under Chapter 2 “Non-market-based interventions” of this thesis.
[153] Roache et al (2018) *FULJ* 1061-1062.
[154] CSPI *Big Soda vs. Public Health* (2015) 2.
[155] JL Pomeranz, L Zellers, M Bare & M Pertschuk “State Preemption of Food and Nutrition Policies and Litigation: Undermining Government’s Role in Public Health” (2019) 56 *AJPM* 47 47.
[156] R Kersch & B Elbel “Public Policy & Obesity: Overview and Update” (2015) 5 *Wake Forest Journal of Law & Policy* 105 112.

discarding it.[157] The United States Department of Agriculture ("USDA") Dietary Guidelines Advisory Committee has provided that unhealthy foods and drinks should be taxed, and that these revenues should be earmarked for obesity prevention and nutrition education programmes. In March 2015, Congresswoman Rosa DeLauro introduced a bill providing for a federal $0,01 per fluid ounce SSB tax on drinks containing caloric sweeteners. However, nothing has materialised of this proposed legislation.[158] Min provides that, although "state legislatures have often introduced soda tax policies, these policies have either been repealed or have not been implemented, mainly due to fierce resistance by lobbyists."[159]

Although the use of earmarked taxes does not necessarily increase the level of expenditure on the relevant cause or project, earmarking has been described as "the most successful way to frame an SSB tax in order to gain more public and political support."[160] In New York, for example:

> "A 2008 poll of New York State residents found that 52% support a soda tax, rising to72% when the revenue would be dedicated to programs to prevent obesity in children and adults. How the issue is framed is essential, with highest support when the tax is introduced in the context of promoting health and the revenues earmarked for child nutrition or obesity prevention programs."[161]

After a number of SSB and soft drinks tax proposals were rejected or abandoned at federal, state and local levels, the City of Berkeley in Alameda County, California ("Berkeley") became the first local jurisdiction in the USA to pass a tax on SSBs.[162] Despite the $2,45 million spent on industry lobbying efforts in Berkeley between January 2014 and January 2015, the Sugar-Sweetened Beverage Product Tax ("SSBPT") was passed in November 2014, and became effective in January 2015.[163] The objective of the SSBPT is the reduction of the external costs of diseases that are

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[157] T Hamburger & K Geiger "Beverage industry douses tax on soft drinks"(07-02-2010) *L.A. Times* <http://articles.1atimes.com/2010/feb/07/nation/la-na-soda-tax7-2010febO7> (accessed 08-11-2018).

[158] Long et al (2015) *AJPM* 112-121; Jerrett (2018) *FDLJ* 471-472.

[159] Min (2013) *JLPP* 191.

[160] WCRF *Building momentum* 17; RSA National Treasury *A Framework for Considering Market-Based Instruments* 101.

[161] Brownell et al (2009) *NEJM* 1603-1604.

[162] Healthy Berkeley "First City in the United States: Berkeley's Tax on Sugar-Sweetened Beverages" (2015) *Healthy Berkeley* <http://www.healthyberkeley.com/about-berkeleys-tax-ordinance/> (accessed 06-11-2018).

[163] CSPI *Big Soda vs. Public Health* 12; City of Berkeley "Frequently Asked Questions (FAQ) for the Sweetened Beverage Tax of Berkeley, CA" (30-12-2017) *City of Berkeley* <https://www.cityofberkeley.info/uploadedFiles/Finance/Level_3_-_General/Frequently%20Asked%20Questions%20Edited%20Version%20111015.2.pdf> (accessed 05-11-2018).

related to SSBs consumption. Although the revenue generated by the SSBPT accrues to the City of Berkeley's general revenue fund, the Berkeley City Council receives recommendations from a Sugar-Sweetened Beverages Product Panel of Experts ("the SSBPT Panel"), that makes "recommendations on how and to what extent the City should establish and/or fund programs to reduce the consumption of sugar-sweetened beverages in Berkeley and to address the effects of such consumption."[164] SSBPT has generated around $1,2 million per year, and the SSBPT Panel has advised that $4,15 million to be allocated to health programmes aimed at reducing SSB consumption. Accordingly, over $2,16 million has been spent on school-based prevention measures, and over $1,7 million has been spent on diabetes prevention, health and nutrition education, and training for youth leadership in community organisations.[165]

In addition to this use of SSBPT revenue, the ability of the SSBPT to withstand industry opposition has largely been attributed to widespread information and education campaigns leading up to the proposal.[166] Similarly, although described as an "earmarked" tax, the revenue generated from the PBT accrues to the General Fund, and there is a commitment to use it for its dedicated purposes.[167] Mayor Kenney has stated that the PBT was successfully implemented because it was framed as a revenue-raising tax, and was used to fund health and education programmes. He believes that transparency was an important aspect of the sustainability of the tax.[168] Lockwood agrees that the association between the SSB tax and the spending programmes was an important factor in the sustainability of the tax, because a number of proposed SSB taxes in the USA had failed, which were not

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[164] Berkeley, California, Municipal Code § 7.72.090(A).

[165] Healthy Food America "Policy Profile: Berkeley, CA Sugary Drink Tax" (25-09-2016) *Healthy Food America* <http://www.healthyfoodamerica.org/policy_profile_berkeley_ca_sugary_drink_tax> (accessed 18-08-2019).

[166] WCRF *Building momentum* 15; Healthy Food America "Policy Profile: Berkeley, CA Sugary Drink Tax" *Healthy Food America* 3.

[167] M Tanenbaum "Philadelphia releases searchable database for public to track soda tax revenue, spending" (11-12-2018) *Philly Voice* <https://www.phillyvoice.com/philadelphia-soda-tax-revenue-data-searchable-expenditures-pre-k-rebuild/> (accessed 19-18-2019).

[168] L Cohen "Philadelphia passes soda tax after mayor rewrites playbook" (16-06-2016) *Reuters* <http://www.reuters.com/article/us-beverages-philadelphia-sodatax-idUSKCNOZ22G3> (accessed 08-11-2018).

linked to any specific spending programme. However, it has been argued that income taxes are a more efficient source of revenue for these programmes.[169]

3 4 3 Minimum price change to influence consumption

Where food excise taxes are charged against the manufacturer, there are increased costs of production: from the tax itself; and from increased administrative costs, including tax registration and accounting, etc. Food excise taxes primarily aimed at reducing consumption require that the tax is either: charged on the manufacturers, who increase the prices for consumers; or charged on the consumers themselves.[170] There are limited cases where these taxes are levied against the consumers themselves, and the following discussion only considers the implications for taxes levied against manufacturers. Where taxes on unhealthy food and beverage products are levied against the manufacturers of these products, it is usually expected that: manufacturers will pass through this tax burden to consumers in the form of increased prices; and that consumers' demand for these products will thereby decrease, which will lead to dietary improvements in line with the relevant health objectives.[171]

A number of States and local jurisdictions in the USA apply higher-than-standard sales tax rates for soft drinks, or exclude these drinks form sales tax exemptions. For example, soft drinks are excluded from the food and non-alcoholic beverages exemption in terms of the 6% sales tax in Pennsylvania.[172] The average effective tax rate on these beverages across all states is lower than this 6%, and although Fletcher et al provide that these do influence consumption, their impact on weight is relatively small.[173] While most authors agree that a minimum level of price increase is needed in order to significantly deter consumption, certain authors believe that this

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[169] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" *Wharton University of Pennsylvania*.

[170] J Falbe, N Rojas, AH Grummon & KA Madsen "Higher Retail Prices of Sugar-Sweetened Beverages 3 Months After Implementation of an Excise Tax in Berkeley, California" (2015) 105 *AJPH* 2194 2198.

[171] Sturm et al (2010) *Health Aff* 1058.

[172] Pa. Code § 31.2(1)-(2), 31.1(3)(vii), 31.3(3), (6), (10), (12) & (14). The sales tax rate is 6% of the purchase price. Food and non-alcoholic beverages are exempt from the sales tax in Pennsylvania, with the exceptions of: foods prepared by eating places or caterers; and soft drinks that are sold for more than $0.10. Other exemptions include certain fuels, medications, clothes and textbooks.

[173] JM Fletcher, D Frisvold & N Teff "Can Soft DrinkTaxes Reduce Population Weight?" (2010) *Contemp Econ Policy* 23 31.

level is 20%, and others argue that it could be lower than this.[174] The WHO refers to a systematic review by Powell et al as evidence showing "that a tax on sugary drinks that raises prices by 20% can lead to a reduction in consumption of around 20%, thus preventing obesity and diabetes."[175]

Duffey et al provide that an 18% price increase for SSBs would lead to "significant" reductions in Body Mass Index ("BMI") and the risks for obesity-related NCDs.[176] In support of the 20% rule: Bodker et al provide that more significant decreases in purchases are observed for products that have larger price increases;[177] and Biro estimated that a 29% increase in average prices of food products subject to the PHPT in Hungary was necessary to achieve significant consumption changes.[178] In a systematic review, Wright et al examined 22 studies on food excise taxes, and specifically considered this 20% rule.[179] Of the studies considered: positive health impacts were identified for all studies where food excise taxes increased the prices of the targeted products by at least 20%; only half of the studies on food excise taxes that increased the prices by less than 20% identified positive health impacts; and the other half of these studies on food excise taxes that increased the prices by less than 20% identified negligible or negative health impacts. It could therefore be argued that, although a number of studies indicate that a food excise tax that increases the prices of the targeted foods by less than 20% could produce health benefits, the evidence in favour of the 20% rule appears to be stronger.[180]

One exception to the 20% rule appears to be the Flavoured Drinks Tax in Mexico, which increased the prices of the targeted products by around 10%.[181] In response to a comment that the rate of HPL should be increased so that prices increase

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[174] Wright et al (2017) *BMC Public Health* 12.
[175] WHO *Taxes on sugary drinks* 3; LM Powell, JF Chriqui, T Khan, R Wada & FJ Chaloupka "Assessing the potential effectiveness of food and beverage taxes and subsidies for improving public health: a systematic review of prices, demand and body weight outcomes" (2013) 14 *Obes Rev* 110 110.
[176] KJ Duffey, P Gordon-Larsen, JM Shikany, D Guilkey, DR Jacobs & BM Popkin "Food Price and Diet and Health Outcomes: 20 Years of the CARDIA Study" (2010) 170 *Arch Intern Med* 420 424-425. 56kcal/2811,9kcal= 1,99%.
[177] M Bodker, C Pisinger, U Toft & T Jorgensen "The Danish fat tax- effects on consumption patterns and risk of ischaemic heart disease" (2015) 77 *Prev. Med* 200 200-202.
[178] Biro (2015) *Food Policy* 117 & 132.
[179] Wright et al (2017) *BMC Public Health* 1-11.
[180] 7.
[181] WCRF *Curbing global sugar consumption* 11.

sufficiently to induce a "meaningful impact," the *Final Response Document* provided that:

> "The studies do not show that the impact will only be realised with a tax rate above 20 per cent. Given the price elasticities of the products, the proposed tax rate will still increase prices and create an incentive for product reformulation and reduce the consumption of sugary beverages and promote better health outcomes. However, there will be less of an impact than if the effective tax rate was set at 20 per cent. Mexico introduced a tax of soft drinks in 2014 of 1 peso per litre (i.e. around 10 per cent) *and the consumption of sugary beverages did decrease*." (emphasis added)[182]

This comparison to Mexico is further discussed below.[183] However, price is not the only consideration for consumption decisions, and consumers and manufacturers could respond to the tax in a number of ways that might undermine the health objective, regardless of the anticipated price increases. Stacey et al (2019) provide that the "ultimate reductions in disease risk... are determined by how market actors respond to the incentive structure that these policies impose," and Thiele and Roosen provide that the "most important question regarding the consumer is, how their health will be affected by the tax; but this remains largely unclear."[184] It is therefore important for policymakers to consider: how both consumers' and manufacturers' behaviour could influence the tax's effectiveness, specifically in the light of the health and consumption context of the relevant jurisdiction; and how various aspects of formulation could influence these responses.

There are a broad range of factors in the complex consumer food environment that influence how food excise taxes influence health outcomes.[185] According to the *South African National Health and Nutrition Examination Survey* ("*SANHANES*"), for example, the majority of grocery shopping done in South Africa in 2012 was by females, and of these females who participated in the survey: 64,5% considered the price of the food item; 17,5% considered the taste of the food item; 14,3% considered the health effects of the food item; 14,1% considered the nutritional content of the food item; 14,1% considered how well or for how long the food item keeps; 9,6% considered the safety of the food item in terms of hygiene; 9,6% considered convenience; and 7,1% considered how easy it is to prepare the food

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[182] RSA National Treasury & SARS *Final Response Document* 8.
[183] Discussed below under heading "5 2 5 Flavoured Drinks Tax in Mexico" in Chapter 5 of this thesis.
[184] N Stacey, C Mudara, S Ng, C van Walbeek, K Hofman & I Edoka "Sugar-based beverage taxes and beverage prices: Evidence from South Africa's Health Promotion Levy" (2019) 238 *Soc Sci Med* 1 4; Thiele & Roosen "Obesity, Fat Taxes and Their Effects" in *Regulating and Managing Food Safety* 190.
[185] WCRF "NOURISHING database" *WCRF*.

item.[186] These considerations are different for different ages and different socio-economic groups. Although price was the predominant consideration in terms of the *SANHANES* survey, non-market-based interventions aimed at influencing the acceptability and availability of certain foods are also necessary to meaningfully improve the consumer food environment.

3 5 Channels for reprising objective

3 5 1 Consumer behaviour

3 5 1 1 Price elasticity and cross-price elasticity of demand

Consumption changes in response to increased prices depend on the price elasticity of demand, which is defined as a "measure of the responsiveness of the quantity demanded of a good to a change in its price when all other influences on buying plans remain the same."[187] It is generally accepted that the demand for food is relatively inelastic: the change in the demand is proportionally smaller than the change in price.[188] Therefore, to some extent, a food excise tax that increases prices for consumers will result in some level of reduced consumption of the targeted foods. However, it is unclear whether this outcome will necessarily have a positive impact on overall dietary quality, because there is a broad range of factors that influence substitution patterns and overall dietary quality.

In addition to the price elasticity of demand for the targeted food products, the cross-price elasticity of demand for substitute products is an important consideration. Cross-price elasticity of demand is defined as a "measure of the responsiveness of the demand for a good to a change in the price of a substitute... other things remaining the same."[189] The higher the price elasticity of demand is for the targeted products, the more likely consumers are to purchase untaxed substitute products in their place. In this context, it is important to consider whether increased consumption

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[186] HSRC *The South African National Health and Nutrition Examination Survey SANHANES-1* (2013) 1. Only 23,6% of South African females in this survey reported to not do grocery shopping, compared to 54,4% of males who reported to not do grocery shopping. Of the adult males over 15 years of age who did grocery shopping in 2012: 35,9% considered the price of the food item; 10% considered the taste of the food item; 7,4% considered the nutritional content of the food item; 7,3% considered health effects of the food item; 7% considered how well or for how long the food item keeps; 6,4% considered convenience; 5,2% considered the safety of the food item in terms of hygiene; and 4,7% considered how easy the food item is to prepare.

[187] Parkin *Microeconomics* 84.

[188] Ecorys *Report* 34.

[189] Parkin *Microeconomics* 91.

of substitute products reinforces or undermines the health objective.[190] In line with the health objective, consumers might increase their consumption of untaxed, healthier substitute foods in place of the targeted unhealthy foods. However, it is also possible that consumers replace the targeted foods with other untaxed or cheaper unhealthy substitutes. For example, some consumers might drink SSBs because they enjoy the taste of soft drinks, and others might consume SSBs because they enjoy the taste of sugar; consumers who enjoy the taste of soft drinks would be more likely to substitute SSBs for artificially-sweetened beverages ("ASBs"), and consumers who enjoy the taste of sugar might choose to substitute SSBs for other sugary food products.[191]

If only certain SSBs are subject to the tax, then consumers might substitute these SSBs with untaxed SSBs. Further, food excise taxes that target only one nutrient may lead to substitution towards untaxed food products that contain other harmful nutrients. For example, an SSB tax could lead to substitution towards chocolate and confectionery products, which could increase the consumption of saturated fat. Even if such a substitution results in decreased sugar consumption, the increase in consumption of saturated fat could offset any improvements to diet quality and energy intake. Therefore, the sizes and patterns of cross-price elasticities of demand across other food products will also affect the tax's effectiveness in decreasing the consumption of the targeted nutrient.[192]

3 5 1 2 Need for subsidies and other non-market-based interventions

When used as the only policy intervention, certain research indicates that market-based interventions may not be very effective at improving overall nutritional intake.[193] Because taxes have the effect of decreasing the real income of consumers, purchasing power is reduced. Depending on the elasticities and cross-price elasticities of demand for the targeted products and their substitutes, consumers might spend: a larger portion of their income on the taxed products; and less on healthier foods, because they have less available income. Conversely: Thow et al found that while subsidies do lead to an increase in consumption of the targeted

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[190] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 150.
[191] R Griffith, M Lührmann, M O'Connell & K Smith *Using taxation to reduce sugar consumption* IFS Briefing Note BN180 (2016) 13.
[192] 13-14.
[193] Cobiac et al (2017) 14 *PLoS Med* 2.

healthy foods, they usually also lead to an increase in consumption of unhealthy foods, because consumers have more income available to spend on these foods;[194] and Cobiac et al found that a subsidy on fruits and vegetables would likely lead to an increase in sodium intake and total energy intake.[195] However, this study also found that, in the absence of a subsidy on fruits and vegetables, the use of excise taxes on certain nutrients, junk food and SSBs would lead to a decrease in the consumption of fruits and vegetables.[196]

Research suggests that the cost-per-calorie for EDNPs is lower than that of healthier foods. Where there is a lack of information and education on nutrition and a lack of resources, poorer consumers choose foods to meet their basic energy needs instead of choosing healthier foods.[197] Where taxes on EDNPs are introduced, poorer consumers may allocate an even smaller proportion of their income to healthier foods, because the EDNPs have become more expensive. In the case of SSBs taxes, these consumers might not substitute sugary drinks for ASBs, as these would not meet their energy requirements.[198] Where there is a lack of nutrition education, EDNPs are cheaper per-calorie than healthy foods, and poorer consumers' demand is relatively inelastic for these foods, then a food excise tax that increases the prices of these foods is likely regressive, and might reinforce existing health inequalities.[199] Therefore, while a tax might discourage consumption through increased prices, it is important to: implement some non-market-based education or information measure relevant to the consumption of unhealthy foods targeted by the tax; and consider introducing a subsidy on healthier foods, depending on the

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[194] A Thow "A systematic review of the effectiveness of food taxes and subsidies to improve diets: Understanding the recent evidence" (2014) 72 *Nutr Rev* 551 553.

[195] Cobiac et al (2017) *PLoS Med* 8.

[196] Thow et al (2014) *Nutr Rev* 563; Cobiac et al (2017) *PLoS Med* 2-8. Because of these income effects, there is potential for market-based interventions to result in an overall increase in calorie consumption. Subsidies are therefore a useful intervention for pursuing health objectives, but only if they are used in combination with one or more of the other policy interventions. It is however, unclear which specific combination of these interventions would be optimal for achieving health objectives

[197] Hernández-Quevedo & Weatherly "Health promotion" in *Promoting Health, Preventing Disease* 261. In this case, there is "considerable price pressure to buy" EDNPs. Lean meats and vegetables are examples of more expensive, healthier foods.

[198] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" *Wharton University of Pennsylvania*. Further, in many urban areas, it is cheaper for consumers to drink soda than bottled water, and lower socio-economic groups drink more SSBs than higher socio-economic groups.

[199] Hernández-Quevedo & Weatherly "Health promotion" in *Promoting Health, Preventing Disease* 264.

consumption patterns in the relevant jurisdiction.[200] These complementary measures could both minimise the regressive impact of food excise taxes for poorer consumers, as well as reinforce the health objective.

3 5 1 3 Soda Tax in Denmark and other factors that influence demand

Since the Soda Tax was first implemented, the rates have fluctuated, and the list of taxable products has changed. Before 1984 for example, the Soda Tax was levied at the rate of 0,8 Danish Kroner ("DKK") per litre, and after 1984 this rate almost doubled, to DKK 1,58 per litre.[201] Although there is no research on the impact that the Soda Tax might have had on health or obesity objectives, both before and after the differentiated rates were applied, it still provides useful lessons on: how different rates and scopes of taxable products could influence health objectives and revenue objectives; the potentially negative impact on redistribution and economic growth objectives; and how factors other than price can influence demand. For example, the sale of soda products doubled during the period 1976 to 1999, and the tax rate increase in 1984 had a limited impact on the sales of soda products. It has been suggested that this might have been influenced by the fact that it became more fashionable during this time to drink branded soda products, such as Coca-Cola.[202]

From data collected during 1999 to 2013, the *Ecorys Report* observed that the demand for cola decreased after prices increased, and increased after tax reductions.[203] However, this study noted that there was volatility in the market for soda, and that not all of the demand changes were attributable to the tax changes. For example, between 2005 and 2006, there were no tax changes, but the demand for low-calorie soda increased significantly.[204] After the differentiated rates were applied for soda products, there was a slight increase in consumption of low-calorie cola, but these changes should be viewed in the light of the existing trend of increasing low-calorie cola consumption.[205] As discussed below, cross-border trade is another important consideration, particularly within the European Union ("EU") and

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[200] Holt (2011) *Lancet* 755.

[201] Skatteministeriet "Kapitel XI. Mineralvandsafgift" (2000) *Skatteministeriet* <http://www.skm.dk/skattetal/analyser-og-rapporter/rapporter/2000/november/rapport-om-graensehandel-2000/kapitel-xi-mineralvandsafgift> (accessed 28-10-2019) [Chapter XI. Mineral tax]. Kindly refer to Annex F of this thesis "Soda Tax rates in Denmark."

[202] Skatteministeriet "Kapitel XI. Mineralvandsafgift" *Skatteministeriet*.

[203] Ecorys *Report Annexes* 85.

[204] 88-89.

[205] Ecorys *Report* 41.

the USA.[206] Consumers could also respond to tax-induced price increases by engaging in cross-border trade, which undermines the health objective.

3 5 2 Food industry response

3 5 2 1 Manufacturer and retailer behaviour

In order to offset the increased costs of production, manufacturers could respond in a number of other ways.[207] For example, manufacturers could reformulate their products to limit their tax liability, or distribute the increased costs across other, un-taxed products. This could ultimately defeat any health objective, particularly if the price increase is distributed over healthy foods.[208] Manufacturers could also respond to the increased costs by: introducing new products, which may or may not be healthier than the targeted products; adopting more aggressive marketing strategies to counteract a decrease in demand for SSBs; and lobbying against the tax. Particularly for the beverage industry, there is incentive to resist SSB taxes through marketing.[209] Increased marketing and lobbying efforts undermine the health objectives pursued by the tax, because: marketing has been shown to increase sales, so consumption of the targeted products might not decrease as anticipated; and it is possible for taxes to be repealed as a result of successful lobbying efforts. For example, although SSB taxes were passed in three additional cities in California after the successful implementation of the SSBPT in Berkeley, lobbying efforts have resulted in new pre-emption laws in California. In terms of these laws, no additional local governments may enact similar taxes until 2030.[210] According to an article in The New York Times:

> "Beverage companies spent at least $7 million to get an initiative on the ballot this November that would have prevented local communities from raising taxes without approval from two-thirds of voters or an elected body, rather than a simple majority.

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[206] As discussed below under headings "5 2 1 2 Philadelphia Beverage Tax" and "5 2 2 3 Impact on other policy objectives" in Chapter 5 of this thesis.

[207] Falbe et al (2015) *AJPH* 2194. In terms of the channel discussed above, the pass-through of the tax is the first step towards reducing consumption.

[208] Mirrlees et al *Tax by Design* 27.

[209] M Schaefer "Soft Drinks in 2014: A World in Flux" (10-02-2014) *Euromonitor International* <https://blog.euromonitor.com/soft-drinks-in-2014-a-world-in-flux/> (accessed 13-12-2018); Benade & Essop (2017) *SA Heart* 151.

[210] WCRF *Use economic tools* 12-14. SSB taxes have been implemented in Californian cities: in Albany since April 2017; in Oakland since July 2017; and in San Francisco since January 2018. Apart from the PBT and these Californian cities, SSB taxes have been implemented in: the Navajo Nation since April 2015; Boulder, Colorado since July 2017; and Seattle, Washington since January 2018.

> Such a change would have made it much more difficult for localities to pay for policy, fire transit and other public services. According to several state senators, the industry then went to lawmakers in Sacramento with a proposal: Pass a bill banning soda and food taxes, and the industry would drop its November ballot initiative... Several top lawmakers said they opposed the measure banning soft drink taxes... but many felt obliged to support it because they were so worried about the effects of the broader ballot initiative."[211]

Similar pre-emption laws have also been passed in Arizona and Michigan.[212] In addition to pre-emption laws, the food and beverage industry has employed the following tactics to undermine health policy efforts: funding scientific research in order to influence nutrition policy;[213] public messaging in order to highlight certain aspects of healthy lifestyles, while simultaneously promoting their products as a component of a "balanced lifestyle;" and funding the financing of "grassroots" opposition, in order to create a broader opposition base.[214]

3 5 2 2 Tax pass-through

Where manufacturers increase their prices, they might do so to a lesser extent than the increased costs of production; only where markets are perfectly competitive and there is perfectly inelastic demand, will a 1% tax result in a 1% increase in retail price. Because the demand for SSBs is elastic, retailers or distributors may choose to absorb the increase in costs or distribute the increased costs across other, untaxed products. Where this occurs, the tax is "under-shifted" and prices increase by less than expected.[215] Similarly, manufacturers could also undermine the governments' health objectives where subsidies or reduced VAT rates are introduced for healthy foods. This issue was discussed when it was considered whether reduced VAT rates should be introduced for healthy foods in Denmark in 2008. It was noted that it was possible for retailers to not fully pass on the reduced prices to consumers, but instead collect larger profits. This would also result in

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[211] A O'Connor & M Sanger-Katz "California, of All Places, Has Banned Soda Taxes. How a New Industry Strategy is Succeeding" (27-06-2018) *The New York Times* <https://www.nytimes.com/2018/06/27/upshot/california-banning-soda-taxes-a-new-industry-strategy-is-stunning-some-lawmakers.html> (accessed 18-08-2019).

[212] O'Connor & Sanger-Katz "California, of All Places, Has Banned Soda Taxes" *The New York Times*.

[213] CE Kearns, LA Schmidt & SA Glantz "Sugar Industry and Coronary Health Disease Research A Historical Analysis of Internal Industry Documents" (2016) 176 *JAMA Intern Med* 1680 1681-1682.

[214] Roache et al (2018) *FULJ* 1066.

[215] Falbe et al (2015) *AJPH* 2194.

diluted dietary improvements, and the government would lose revenue unnecessarily.[216]

In the case of SSBs taxes, studies have shown that the pass-through rate ranges between 63% to over 300%, depending on the brands, beverage types and retailers. Particularly in monopolistic or oligopolistic markets, taxes might be over-shifted by the retailers or distributors to the consumers. Studies have shown that taxes have been over-shifted in the case of excise taxes on alcohol, cigarettes and saturated fat.[217] According to the *Ecorys Report*, the "underlying assumption" for the channel of consumption changes in response to the tax "is that these changes in producer prices are fully passed through to consumer prices... under-shifting... is not desirable, while over-shifting... could be welcomed from this logic."[218] As a result of the SSBPT in Berkeley, producers and retailers absorbed a portion of this tax, with the effect that less than half of this tax was passed through to consumers. Where producers and retailers absorb a large portion of the tax, this will dilute the tax's impact on consumption and thereby limit its effectiveness in achieving the health objectives.[219]

It is unclear to what extent the tax will be passed through to consumer prices, but research indicates that the pass-through rate is higher when the industry is supplied with more information on the tax before implementation.[220] The *Ecorys Report* observed that the prices of the targeted products increased by more than the tax rate in Denmark, Hungary, Finland and France, with the exception of energy drinks and salty snacks in Hungary.[221] The decision to pass the tax burden on to consumers will depend on a number of market considerations, such as market competition and the demand for the relevant food product.[222] According to the *Ecorys Report*:

> "The dominant factors in shaping the responses of manufacturers and retailers are the existing margins within the product market in question, the design of the tax and the direction of the tax change, the market share and thus bargaining power of individual retailers and producers, and the availability of substitute products."[223]

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[216] Skatteministeriet "Nedsat moms på sunde fødevarer" *Skatteministeriet*.
[217] Falbe et al (2015) *AJPH* 2194.
[218] Ecorys *Report* 24.
[219] Mann (2017) *Environmental Law* 724; Falbe et al (2015) *AJPH* 2194.
[220] Falbe et al (2015) *AJPH* 2195; Thiele & Roosen "Obesity, Fat Taxes and Their Effects" in *Regulating and Managing Food Safety* 189.
[221] Ecorys *Report* 24.
[222] WHO Regional Office for Europe *Using price policies to promote healthier diets* (2015) 9.
[223] Ecorys *Report Annexes* 24-25.

3 5 2 3 Product reformulation

Manufacturers may respond to food excise taxes by reformulating their products to either avoid the tax or minimise their liability.[224] The decision to reformulate products depends on two main factors: the tax design; and the nature of the targeted product.[225] Further, the nature of certain products is such that reformulation is almost impossible. For example, if a tax based on the saturated fat content in certain dairy products and meats is imposed on food manufacturers, reformulation may not be possible or feasible for meats, given the nature of this food. For certain dairy products, however, it might be possible to reformulate these products so that the saturated fat content is below the threshold.[226] This would be a desirable outcome from a health perspective, because the overall consumption of saturated fat from these dairy products could decrease. Although product reformulation increases production costs, these costs could be once-off depending on the nature of the product and the tax design.[227]

The incentive to reformulate food products might have unintended, undesirable effects on other unhealthy nutrients and additives that are not targeted by the tax.[228] To illustrate this possibility with the saturated fat example, the food manufacturers might alter their products' recipes to compensate for the loss of flavour that the saturated fat provided. For example, these products could be reformulated to contain less fibre and unsaturated fat, or to contain more sugar and sodium.[229] This could potentially lead to an increase, rather than a decrease in the prevalence of obesity and NCDs.[230] In the case of SSBs taxes, SSBs manufacturers might replace the sugar with artificial sweeteners. There is currently much conflicting research and relatively little conclusive evidence on whether artificial sweeteners are in fact healthier alternatives to sugar. Although food standards authorities generally agree that moderate amounts of aspartame, acesulfame-K, neotame, saccharin, sucralose and stevia are safe for human consumption, there are a number of other artificial

[224] RSA National Treasury *Policy Paper* 16.
[225] Ecorys *Report* 31.
[226] RSA National Treasury *Policy Paper* 16.
[227] Ecorys *Report* 31; Cobiac et al (2017) *PLoS Med* 4.
[228] Cobiac et al (2017) *PLoS Med* 4.
[229] 12.
[230] 3.

sweeteners that are treated differently in different jurisdictions.[231] For example, sodium cyclamate is listed as a permissible sweetener in South Africa, but was banned in the USA and the UK after a study found that this substance increased the incidence of bladder tumours in rats.[232]

If these sweeteners do contribute to adverse health effects in the long term, then although this type of SSB reformulation might decrease energy intake, it could be argued that it is in conflict with broader health objectives. South Africa's Food-Based Dietary Guidelines ("FBDGs") make almost no reference to artificial sweeteners, but in the information provided for the "Rethink your drink – choose water!" campaign, the NDOH provided that: "artificially sweetened drinks... are a better short-term choice than sugary drinks;" but "this does not mean... artificially sweetened drinks are healthy, as they still taste very sweet and cravings for sweet goods can continue;" and therefore, ASBs "should not be part of a long-term healthy eating plan." While it is acknowledged that ASBs might be a good substitute for regular SSBs consumers, the NDOH provides that the consumption of ASBs should be used as a "step to cutting down" SSBs consumption.[233]

3 6 Conclusion

There are a number of channels through which taxes on certain unhealthy foods could lead to improved health outcomes: by reducing demand and thus consumption through increased prices; by incentivising manufacturers to reformulate unhealthy products to minimize the increased costs of production or avoid tax liability; through the funding of other health prevention initiatives with the revenues collected from the tax; and in terms of the signalling effect to consumers and manufacturers about the negative health consequences of certain foods or nutrients.[234] The *Policy Paper* provides that the HPL will assist in both: reducing negative health consequences to

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[231] L Delahanty "Patient education: Type 2 diabetes and diet (Beyond the Basics)" (28-06-2018) *UpToDate* <https://www-uptodate-com.ez.sun.ac.za/contents/type-2-diabetes-and-diet-beyond-the-basics?search=artificial%20sweetener&source=search_result&selectedTitle=3~150&usage_type=default&display_rank=3> (accessed 12-09-2018).

[232] M Prival "Carcinogens in the Food Chain" in B Caballero, L Trugo & P Finglas (eds) *Encyclopedia of Food Sciences and Nutrition* 2 ed (2003) 799 803; RSA NDOH *List of Permissible Sweeteners referred to in Regulation 4 of the Regulations Relating to the Use of Sweeteners in Foodstuffs* (2012) 1.

[233] RSA NDOH *National Nutrition Week 2017* 8.

[234] Hernández-Quevedo & Weatherly "Health promotion" in *Promoting Health, Preventing Disease* 261; Backholer et al (2016) *PHN* 3057.

individuals by encouraging reduced sugar consumption; and correcting a market failure, by reducing the external costs from increased public healthcare expenditure.[235] The *Final Response Document* provides that the price increases as a result of the HPL will "promote better health outcomes" by creating "an incentive for product reformulation" and reducing "the consumption of sugary beverages."[236] Further, the *Policy Paper* provides that the HPL will also serve an important price-signalling function, which will assist consumers in making more informed decisions regarding the harm of excessive sugar consumption from SSBs.[237]

Similarly to the health-promotion channels described for the HPL, the relevant food taxes and tax changes implemented in Denmark, Hungary and Mexico also sought to improve health through discouraging consumption and encouraging product reformulation.[238] However, more attention was given to the revenue-generating potential of these taxes in these other jurisdictions, and: although the additional revenue that could be generated from the HPL was discussed, this aspect was not emphasized; and the HPL was specifically framed in terms of health promotion.[239] While health promotion has typically been pursued through the reduced consumption channel, the recently-implemented SDIL in the UK specifically aims to encourage product reformulation instead of increased prices.[240] In contrast to these other taxes, the PBT in Philadelphia was specifically framed in terms of revenue generation, and not health promotion; this tax was not even framed in terms of revenue generation for purposes of funding health promotion, but rather for developing community amenities and funding a universal pre-K education system in Philadelphia.[241]

In general, revenue generation is the most important objective of taxation, but taxes can also be used to pursue other socio-economic and political objectives, including: economic growth; reprising; and the redistribution of resources.[242] In this

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[235] RSA National Treasury *Policy Paper* 10.
[236] RSA National Treasury & SARS *Final Response Document* 8.
[237] RSA National Treasury *Policy Paper* 9.
[238] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 94-225; Ecorys *Report Annexes* 214; Varga "A népegészségügyi termékadó" *Egzatik Szakkiadó*; WCRF *Building momentum* 25.
[239] RSA National Treasury *Budget Review* (2016) 10 & 52.
[240] UK HM Revenue & Customs *Soft Drinks Industry Levy* 4 & 7.
[241] Jerrett (2018) *FDLJ* 480; Cuellar "Philadelphia City Council Passes Beverage Tax with 13-4 Vote" *6ABC News*.
[242] Muller *A Framework* 37 & 40; SARS "Excise Duties and Levies" (21-02-2018) *SARS;* Bird & Wallace "Taxing Alcohol" in *Excise Tax Policy and Administration* 22;

context, the reprising objective encompasses both the channels of discouraging consumption and encouraging reformulation, as well as the signalling channel. Where food taxes are introduced in order to generate revenue for health programmes, the objectives of revenue generation and reprising are not necessarily in conflict with each other. However, there could be a conflict between the channels for improving health outcomes: where these taxes aim to generate revenue to fund immediate health projects; and where these taxes aim to increase the available revenue for other health concerns over the long term, as a result of long-term dietary and health improvements.

Taxes in general are evaluated in terms of Adam Smith's canons for a good tax system: equality; certainty; convenience; and economy.[243] Although it is difficult to satisfy each of these criteria, it is important for tax laws to strike an appropriate balance between these principles in order to be effective and sustainable. Where these taxes are not sustainable, their ability to pursue their objectives is limited. Mayor Kenney has stated that the PBT was successfully implemented because it was framed as a revenue-raising tax, and that this transparency was an important aspect of the tax's sustainability.[244] The earmarking of revenues from a tax reform could strengthen the public's support for tax increases, and thereby increase their sustainability.[245] Earmarking could also be used to direct funds back to lower socio-economic consumers in order to mitigate the regressive impact of the tax, through: subsidizing healthy foods; providing cash rebates; or funding projects that provide disproportionate benefits to lower socio-economic groups that bear a large portion of the economic burden of the tax.[246] However, where the effect of these taxes is that consumption is successfully reduced or products are significantly reformulated, the revenue collected will decrease: low tax rates are important where the policy objective is revenue generation, because this results in minimal price increases and a stable stream of revenue. It may therefore important for policymakers to clearly identify the tax's objective and the relevant channel, and formulate its provisions accordingly. Where reprising is the objective of these taxes, the earmarking of these

[243] Smith *Wealth of the Nations* 347-348.
[244] Cohen "Philadelphia passes soda tax after mayor rewrites playbook" *Reuters.*
[245] Doetinchem *Hypothecation of tax revenue for health* 4.
[246] Jerrett (2018) *FDLJ* 479.

revenues are not recommended for on-going projects, but could be used for once-off projects.[247]

Most authors agree that food taxes formulated in terms of the reprising objectives need to increase prices by a minimum amount. Although a number of studies indicate that taxes that increase prices by less than 20% could produce health benefits, the evidence in favour of the 20% rule appears to be stronger, and the WHO itself refers to a study that provides that "a tax on sugary drinks that raises prices by 20% can lead to a reduction in consumption of around 20%, thus preventing obesity and diabetes."[248] However, price is not the only consideration for consumption decisions, and it is important for policymakers to consider: how both consumers' and manufacturers' behaviour could influence the tax's effectiveness, specifically in the light of the health and consumption context of the relevant jurisdiction; and how various aspects of formulation could influence these responses. Among other factors, consumption changes and the overall impact on dietary quality depend on the price elasticity of demand for the targeted products, and the cross-price elasticity of demand for substitute products. [249] It is possible for increased prices to change consumption: in line with the health objective, where consumption of unhealthy nutrients and ingredients is reduced, and consumers substitute healthier foods; or against the health objective, where consumers substitute the targeted food products with similarly unhealthy ones, or reduce their consumption of healthier foods. In this regard, non-market-based interventions aimed at educating and informing consumers about health and nutrition could reinforce the health impact and minimise undesirable responses.

Further, where these taxes are levied against the manufacturers of the relevant products, these manufacturers could respond in a number of other ways in order to offset the increased costs of production, including: through reformulating their products to limit their tax liability; by distributing the increased costs across other, un-taxed products; by introducing new products; by adopting more aggressive marketing strategies; and by lobbying against the tax.[250] The decision for

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[247] 480.
[248] WHO *Taxes on sugary drinks* 3; Powell et al (2012) 14 *Obes Rev* 110; Wright et al (2017) *BMC Public Health* 7 & 12.
[249] Parkin *Microeconomics* 84 & 91; Ecorys *Report* 34.
[250] Falbe et al (2015) *AJPH* 2194; Mirrlees et al *Tax by Design* 27; Benade & Essop (2017) *SA Heart* 151; Schaefer "Soft Drinks in 2014: A World in Flux" *Euromonitor International*.

manufacturers to pass the tax burden on to consumers depends on a number of market considerations, such as: market share and competition; the existing profit "margins within the product market in question;" the demand for the targeted products and the demand for available substitute products; and "the design of the tax and direction of the tax change."[251] Manufacturers could also respond to these taxes by reformulating their products to either avoid the tax or minimise their liability.[252] This decision to reformulate will depend on the tax design and the nature of the targeted product.[253] Further, while consumption of the targeted nutrients is a possible outcome, product reformulation will not necessarily be in line with the health objective, because manufacturers could increase their products' content of other harmful nutrients and ingredients.[254]

[251] Ecorys *Report Annexes* 24-25; WHO Regional Office for Europe *Using price policies* 9.
[252] RSA National Treasury *Policy Paper* 16.
[253] Ecorys *Report* 31.
[254] Cobiac et al (2017) *PLoS Med* 3-4 & 12.

CHAPTER 4: FORMULATION OF MARKET-BASED INTERVENTIONS

4 1 Introduction

In the light of the considerations highlighted in Chapter 3, this chapter discusses the relevant aspects of formulation that could influence how these taxes translate to dietary improvements and health outcomes. In addition to discussing the formulation of the Health Promotion Levy ("HPL") and the sugar-sweetened beverage ("SSB") taxes in the selected comparative jurisdictions, a number of other types of market-based interventions are discussed in order to compare and contrast the relevant aspects of formulation. The advantages and disadvantages of both specific taxes and general taxes on goods and services are discussed, and the legal implications of other market-based interventions are explained with reference to experiences in Denmark, the United Kingdom ("UK") and the United States of America ("USA").

The discussion is then focused on specific taxes, and how the policy objective and the relevant channel should inform how these taxes are formulated. Of particular importance here is the scope of products covered by the tax, and the type of tax rate structure. Comments are then made on the relevant advantages and challenges presented by certain aspects of formulation, and suggestions are made about which types of formulation might be more suitable for certain policy objectives and their channels for health improvement. The formulation of the HPL is critically compared to the formulation of other taxes on sugary drinks: the Soda Tax in Denmark; the Public Health Product Tax ("PHPT") in Hungary; the Flavoured Drinks Tax in Mexico; the Philadelphia Beverage Tax ("PBT"); the Sugar-Sweetened Beverage Product Tax ("SSBPT") in Berkeley, California; and the Soft Drinks Industry Levy ("SDIL") in the UK. Although not a tax, the treatment of different products and subjects as proposed in terms of the Portion Cap Rule are also considered. In order to address the criticism that the scope of products covered by the HPL is too narrow, taxes targeting a broader scope of products are also discussed: the Junk Food Tax in Mexico; the PHPT in Hungary; and the Saturated Fat Tax in Denmark.

4 2 Taxes on certain unhealthy foods or nutrient-based taxes

4 2 1 Overview of comparative jurisdictions

As discussed above, excessive energy consumption is the main cause of obesity and non-communicable diseases ("NCDs"), but there are a number of nutrients and ingredients that contribute relatively more to this energy consumption, such as added sugar and saturated fat.[1] In addition to these nutrients, policy interventions could also target other non-calorific nutrients or ingredients that are otherwise harmful to health, such as alcohol, sodium or caffeine. For example, Mexico and Hungary have implemented taxes targeting caffeine and energy drinks.[2] These interventions targeting these other nutrients or ingredients specific to other health issues are briefly discussed below.[3] However, this thesis focuses on interventions aimed at reducing excessive energy consumption and addressing obesity-related NCDs and other health concerns caused predominantly by sugar and SSB consumption.

The decision to tax a specific food product or the content of a particular nutrient in a range of products can have significant implications for the tax's success in achieving its policy objectives.[4] While some jurisdictions have implemented food excise taxes that target a particular category of unhealthy foods, others' food excise taxes target a particular unhealthy nutrient in a range of products ("nutrient-based taxes"), such as added sugar and saturated fat. For example, Denmark and Hungary implemented certain nutrient-based taxes: the Saturated Fat Tax in Denmark was based on the saturated fat content in a range of foods;[5] while the PHPT in Hungary targets a number of harmful nutrients and ingredients in a wide range of food and non-alcoholic beverage products, including sodium, caffeine, alcohol and added sugar.[6] Unlike these taxes, Mexico implemented a Junk Food Tax in January 2014, which targets energy consumption, and not any particular nutrient. However, it is

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[1] Discussed above under heading "1 1 1 Increasing burden of obesity and non-communicable diseases" in Chapter 1 of this thesis.

[2] Arts 2(I)(F) & 3(XVII) *de la Ley del Impuesto Especial Sobre Producción Servicios; 2011. évi CIII. Törvény a népegészségügyi termékadóról* § 12(b). Mexico's tax on energy drinks was introduced in January 2011. The tax rate for energy drinks is 25%, and energy drinks are defined as non-alcoholic beverages with an added caffeine content exceeding 20mg/100ml, and also containing taurine, glucoronolactone, thiamine or another substance that has similar stimulant effects. Further, caffeine is one of a number of nutrients and ingredients targeted by the PHPT in Hungary.

[3] Discussed below under headings "4 5 1 Junk Food Tax in Mexico" and "4 5 3 Public Health Product Tax in Hungary" in Chapter 4 of this thesis.

[4] RSA National Treasury *Policy Paper* 14.

[5] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 1.

[6] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2.

probably not possible or practical to tax calories themselves in all foods and beverages, and the Junk Food Tax is only levied on certain non-essential processed food products containing an excess of 275 calories per 100 grams.[7]

France introduced a food excise tax on the category soft drinks that contain any added sugars ("SSBs") or artificial sweeteners ("ASBs"). Similarly, the soft drinks tax in India applies to the category of sweetened non-alcoholic beverages, including both SSBs and ASBs.[8] A number of authors describe "SSB taxes" as food excise taxes imposed on the category of SSBs, regardless of their sugar content.[9] For example, the PBT legislation refers to "sugar-sweetened beverages," but this is a misnomer, as the taxable beverages are not necessarily sweetened with sugar.[10] PBT targets certain soft drinks containing: any sugar-based caloric sweeteners;[11] or artificial sugar sweetener substitutes.[12] Although not always done in practice, it is useful for present purposes to distinguish between nutrient-based food excise taxes on SSBs that are levied with some reference to their sugar content (hereafter referred to as "SSB taxes"), and food excise taxes that target ASBs along with SSBs, with no reference to their sugar content (hereafter referred to as "soft drink taxes").

SSB taxes have a stronger impact on obesity reduction than soft drinks taxes through the reprising objectives, because: manufacturers are more inclined to reduce the sugar content in their SSBs in order to minimise their tax liability; and consumers are more likely to change their consumption away from SSBs, where ASBs and other less sugary drinks become relatively cheaper as a result of the tax.[13] In terms of this distinction, the taxes in France, India and Philadelphia are soft drink taxes. PBT-taxable beverages are therefore referred to as soft drinks hereunder. Because of the potential impact on consumption changes, the decision between implementing a soft drink tax or an SSB tax may indicate whether the objective is predominantly focused

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[7] Arts 2-3 *de la Ley del Impuesto Especial Sobre Producción Servicios*; RSA National Treasury *Policy Paper* 25-26.

[8] WCRF *Building momentum* 11.

[9] S Basu & K Madsen "Effectiveness and equity of sugar-sweetened beverage taxation" (2017) 14 *PLoS Med* 1 1; Stacey et al (2017) *Prev. Med.* S26.

[10] Philadelphia, Pennsylvania, Municipal Code § 19-4103(3).

[11] § 19-4101(3)(a)(1) & 19-4101(3)(b)(1). Sugar-based caloric sweeteners include glucose, sucrose and HFCS.

[12] § 19-4101(3)(a)(2) & 19-4101(3)(b)(2). Artificial sugar sweetener substitutes include aspartame, stevia, saccharin, sucralose, advantame, acesulfame potassium and neotame.

[13] WCRF *Building momentum* 11. This is because the prices for more sugary drinks would increase relatively more than less sugary drinks, and the tax liability for manufacturers would decrease where sugary drinks are reformulated to contain less sugar.

on stable revenue generation, or reprising. For example, Denmark implemented a number of taxes on sugary products since the 1930s, with the purpose of increasing government revenue.[14] Among these was the Soda Tax, which was a soft drinks tax that made no reference to sugar content. Along with other tax changes aimed at health promotion, the legislative provisions for the Danish Soda Tax were changed in 2010, so that it became an SSB tax in line with the government's health promotion objectives.[15]

4 2 2 Danish taxes targeting sugar or certain sugar-sweetened products

The Danish tax authorities have provided that the Soda Tax was imposed for revenue collection, as well as for the promotion of healthcare.[16] In order for the Soda Tax to influence consumption in line with the health objective more effectively, the *Spring Package 2.0* proposed that the rates should be differentiated, so that higher-sugar products became relatively more expensive than lower-sugar products.[17] At this time, the Soda Tax rate was DKK 0,91 per litre for all soda products, regardless of their sugar content. The Prevention Commission initially considered the impact of a 110% increase in the tax rate, but it was later proposed that the rate be changed as follows: for products with a sugar content of less than 0,5 grams per 100 millilitres ("lower-sugar products"), the rate should be reduced by DKK 0,34 per litre, so that the rate payable becomes DKK 0,57 per litre; and for products with a sugar content exceeding 0,5 grams per 100 millilitres ("higher-sugar products"), the rate should be increased by DKK 0,24 per litre, so that the rate payable becomes DKK 1,15 per litre.[18] Although the Prevention Commission estimated revenue increases as a result of a 110% increase in the Soda Tax rate, the amended tax rates as discussed in the *Spring Package 2.0* were not expected to lead to increases in government revenue.

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[14] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 131.

[15] *Lov nr 524 af 12.06.2009 om ændring af lov om afgift af chokolade- og sukkervarer m.m., lov om afgift af konsum-is, lov om afgift af mineralvand m.v., lov om tobaksafgifter og lov om afgift af øl, vin og frugtvin m.m* [Act amending the Act on the taxation of chocolate and sugar products, etc., the Act on the taxation of consumer ice, the Law on the taxation of mineral water, etc., the Law on tobacco taxes and the Law on the taxation of beer, wine and fruit wine etc.] § 3.

[16] Skat.dk "E.A.3.4.2 Definitioner: Mineralvand mv., sukkerholdige - og sukkerfri varer" (15-07-2013) *Skat.dk* <https://www.skat.dk/skat.aspx?oId=1977170&chk=208670> (accessed 17-07-2018). ["E.A.3.4.2 Definitions: Mineral water, etc., sugary and sugar-free products"].

[17] DK Finanministeriet *Forårspakke 2.0* 28.

[18] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 380.

These tax changes would therefore be more focused on pursuing the health objective than on additional revenue generation.[19]

Similar tax changes were made in terms of the Chocolate and Confectionery Tax and the Ice Cream Tax in 2010. The rates for these taxes were also differentiated in 2010 according to the same threshold sugar content in the relevant products. At this time, the rates for the relevant ice cream products and chocolate and confectionery products were DKK 3,40 per litre and DKK 14,20 per kilogram respectively.[20] The Ice Cream Tax is charged on certain ice cream products ("ice cream products"), including ordinary ice cream and ice cream mixes intended for processing in ice cream appliances for commercial consumption.[21] The Chocolate and Confectionery Tax is levied on three different categories of chocolate and confectionery products ("Chapter 1 products") and their components ("Chapter 2 products" and "Chapter 3 products").[22] Chapter 1 products include: chocolate and chocolate products; liquorice products; marzipan; nougat; confectioneries; chewing gum; candied fruit; waffles; cakes; and biscuits.[23] In 2010, the rate for lower sugar Chapter 1 products remained at DKK 14,20 per kilogram of final product, and increased to DKK 17,75 per kilogram of final product for higher sugar products.[24] Similarly, the rate for lower sugar ice

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[19] DK Finanministeriet *Forårspakke 2.0* 14; DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 380; Skat.dk "E.A.3.4.2 Definitioner: Mineralvand mv., sukkerholdige - og sukkerfri varer" *Skat.dk.*

[20] *Bekendtgørelse nr 888 af 17.08.2006 af lov om afgift af konsum-is* [Executive Order on the consumer Ice Cream Tax] § 1; *Bekendtgørelse nr 567 af 03.08.1998 af lov om afgift af chokolade- og sukkervarer m.m.* [Executive Order on the Chocolate and Confectionery Tax, etc.] § 2. When this tax was first implemented, the rate for Chapter 1 products was DKK 6/kg of these products, regardless of their sugar content. There have been numerous increases in the tax rate, until 1998, where the rate was increased and remained stable at DKK 14,20/kg until 2010.

[21] *Bekendtgørelse nr 127 af 22.02.2018 af lov om afgift af konsum-is* [Executive Order on the consumer Ice Cream Tax] § 1-2 and 4.

[22] *Bekendtgørelse nr 567 af 03.08.1998 af lov om afgift af chokolade- og sukkervarer m.m.* § 1, 19 and 22. Chapter 2 products are imported or mined raw materials that could be used in the production of Chapter 1 products. Chapter 3 products are certain imported products which are not taxable in terms of Chapters 1 or 2, but which contain certain taxable components. The discussion on the Chocolate and Confectionery Tax in this thesis is focused on Chapter 1 products. Kindly refer to Annex G for a full list of Chapters 1, 2 and 3 products and their applicable rates.

[23] § 1. These products also include other products that may be considered as imitations or replacements of the above products, when assessed according to their nature, use and the manner in which they are placed on the market.

[24] *Lov nr 524 af 12.06.2009 om ændring af lov om afgift af chokolade- og sukkervarer m.m., lov om afgift af konsum-is, lov om afgift af mineralvand m.v., lov om tobaksafgifter og lov om afgift af øl, vin og frugtvin m.m* § 1. The rates were also increased for Chapter 2 products, and a higher rate was applied for high-sugar products in terms of Chapter 3.

cream products remained at DKK 3,40 per litre, and the rate for higher sugar ice cream products was increased to DKK 4,25 per litre in 2010.[25]

4 3 General goods and services taxes and other policy objectives

4 3 1 *Ad valorem* and specific tax rates

Excise taxes are usually levied at a specified rate on a qualitative measure of the targeted products. For example, the Danish Chocolate and Confectionery Tax was levied at the specified rate (DKK 17,75 in 2010) on the qualitative measure (per kilogram) of the targeted products (higher-sugar Chapter 1 products). Less frequently, excise taxes are also levied at *ad valorem* rates which are applied to the value of the targeted products.[26] For example, the Junk Food Tax in Mexico is levied at an *ad valorem* rate of 8% on the relevant products.[27] Specific rates have been found to be associated with more significant health benefits than *ad valorem* rates, because: *ad valorem* rates impose higher rates on more expensive products, which increase the price differences across different brands, and thus provide more scope for consumers to substitute for cheaper brands of the targeted products.[28]

In addition to not supporting the health objective through decreased consumption, *ad valorem* excise taxes also provide limited incentive for manufacturers to reformulate their products.[29] Conversely, the use of *ad valorem* rates sometimes results in manufacturers deliberately introducing cheaper alternatives to the market, which often have a higher content of the targeted nutrient than the original food products had.[30] The use of *ad valorem* rates therefore does not support health promotion objectives, because: consumers may substitute cheaper versions of the same product; and, instead of reformulating their products, manufacturers may perpetuate this undesirable substitution effect.[31] General taxes on goods and services usually apply *ad valorem* rates and do not discriminate between the

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[25] *Lov nr 524 af 12.06.2009 om ændring af lov om afgift af chokolade- og sukkervarer m.m., lov om afgift af konsum-is, lov om afgift af mineralvand m.v., lov om tobaksafgifter og lov om afgift af øl, vin og frugtvin m.m* § 2.

[26] SARS *"Ad Valorem Products"* (29-09-2017) *SARS* <http://www.sars.gov.za/ClientSegments/Customs-Excise/Excise/Ad-Valorem-Products/Pages/default.aspx> (accessed 03-09-2018).

[27] Art 2(I)(J) *de la Ley del Impuesto Especial Sobre Producción Servicios.*

[28] Ecorys *Report* 23.

[29] 23.

[30] RSA National Treasury *Policy Paper* 14-15.

[31] Wright et al (2017) *BMC Public Health* 8.

nutritional content of different foods, so the potential to reduce sugar consumption through differentiated general goods and services tax rates is limited.[32] However, *ad valorem* taxes are easier to administer and adjust for inflation than specific excise taxes.[33]

4 3 2 Differentiated Value-Added Tax rates in the United Kingdom

In terms of the UK Value Added Tax Act 1994 ("UK VAT Act"), the standard rate of VAT is 20%, but most foods are zero-rated to minimise the regressive impact.[34] However, the VAT zero-rating does not apply to certain food and non-alcoholic beverage products, such as ice cream, juices, sports drinks, soft drinks, potato crisps, and confectionery.[35] "Confectionery" excludes cakes and biscuits, but not chocolate or biscuits that are wholly or partly covered in chocolate. Because the standard rate applies to chocolate but biscuits and cakes are zero-rated, this results in complicated classifications between certain confectionery products, such as: biscuits that are not covered in chocolate (zero-rated), but contain chocolate (standard rate), such as chocolate-chip cookies; and two biscuits (zero-rated) with a layer of chocolate (standard rate) sandwiched between them.[36] Further, although chocolate-covered biscuits are subject to the standard VAT rate, chocolate-covered cakes are zero-rated.[37]

In 1991, one of the largest Jaffa cakes manufacturers appealed against a decision by the customs and excise department that classified Jaffa cakes as biscuits, in *United Biscuits (UK) Ltd* ("*United Biscuits*").[38] It had previously been accepted that Jaffa cakes were cakes, which attracted the zero-rating. The new classification thus meant that this confectionery attracted the standard rate, because they were no longer cakes, but biscuits covered in chocolate. The VAT tribunal in *United Biscuits* described this product as comprising three elements: sponge cake that is soft while it

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[32] JF Chriqui, SS Eidson, & FJ Chaloupka *State Sales Taxes on Regular Soda (as of January 1, 2014) - BTG Fact Sheet* Bridging the Gap Program (2014) 2.
[33] WCRF *Building momentum* 11.
[34] S1 and Part II of Schedule 8 of the UK Value-Added Tax Act 1994. "Food of a kind used for human consumption" is zero-rated, with a number of exceptions.
[35] Part II of Schedule 8. Excepted items include "confectionery, not including cakes or biscuits other than biscuits wholly or partly covered with chocolate."
[36] Para 3.4.2 of UK VAT Notice 701/14 (2011).Chocolate chip cookies are zero-rated "where the chips are either included in the dough or pressed into the surface before baking." The zero-rate applies where "chocolate or similar product forms a sandwich layer between two biscuit halves and is not continued onto the outer surface."
[37] Part II of Schedule 8 of the UK Value-Added Tax Act 1994.
[38] No 2 1991 BVC 818 LON 91/160 No 6344.

is fresh; a small amount of sweet orange jam on top of the sponge cake; and a thin layer of dark chocolate covering this sponge cake and jam. Further descriptions include that Jaffa cakes taste mainly of chocolate and jam, while the sponge cake comprises the greater volume of the product.[39]

Although Jaffa cakes have characteristics of both biscuits and cakes, it was accepted that this confectionery had "sufficient characteristics of cakes to qualify as cakes."[40] Although VAT zero-ratings may serve an important purpose for redistributive goals, it could be argued that the distinctions between certain standard rate and zero-rate products are sometimes arbitrary. For example, other bakery goods such as gingerbread, flapjacks, marshmallow teacakes, caramel shortcake and meringues are zero-rated, while the standard rate is applied to cereal bars, Florentines, shortbread and coconut ice.[41] Further, carbonated drinks and preparations for milkshakes are subject to the standard VAT rate, while chocolate drinks and milkshakes themselves are zero-rated.[42] This distortion is detrimental to economic activity, and may waste government resources in the classification process, as seen in *United Biscuits*.[43]

Although no specific reference was made to these differentiated VAT rates in the UK, similar concerns were highlighted in Denmark when lower VAT rates were considered for healthy foods. For example, European Union ("EU") rules stipulate that precise definitions of "healthy" foods need to be provided where differentiated rates are to be applied for these foods. Formulating these precise definitions increases administrative costs, and often leads to lobbying by the food industry as to which products should be excluded.[44] Further complications arise where the "healthy" foods are not sold individually, but combined with other, unhealthy foods.[45] It was ultimately decided that this would be an undesirable tax change in Denmark, because it would increase administrative costs and over-complicate the VAT system.[46]

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[39] 818.
[40] 818.
[41] Para 3.4 of UK VAT Notice 701/14 (2011).
[42] Para 3.7.2.
[43] Mirrlees et al *Tax by Design* 40-41.
[44] Mirrlees et al *Tax by Design* 154; Skatteministeriet "Nedsat moms på sunde fødevarer" *Skatteministeriet*.
[45] Skatteministeriet "Nedsat moms på sunde fødevarer" *Skatteministeriet*.
[46] Mirrlees et al *Tax by Design* 42.

4 3 3 Food subsidies and sales taxes in the United States of America

4 3 3 1 Sales taxes, tax incidence and the signalling effect

Because of the shortcomings of *ad valorem* rates, the use of differentiated general goods and service tax rates is not recommended. However, it should be noted that a number of jurisdictions have used this approach to increase the relative prices of certain unhealthy food products. For example, certain states and local governments in the USA apply higher-than-standard sales tax rates to soda or exclude soda from sales tax exemptions. Such state jurisdictions include California, Colorado, Illinois, New York, Pennsylvania and Washington.[47] For example, sales taxes in Pennsylvania are only paid by the final purchaser to the retailer, who is required to submit it to the tax authorities. Unlike VAT in a number of jurisdictions, the purchase price of goods subject to the sales tax in Pennsylvania is not required to reflect the sales-tax inclusive price of the goods.[48] Where SSBs are excluded from sales tax exemptions and this is reflected on the consumers' receipt, this could complement the reprising objective and the signalling effect, because consumers are more likely to observe the difference in prices.

It has been commented that a similar deterrent effect could be achieved where the amount of tax is indicated on consumers' receipts for specific excise taxes on certain unhealthy products. For example, although the PBT is not a sales tax, retailers displayed the amount of the tax on a separate line on receipts following the implementation of PBT. However, it is unclear whether this practice will be sustained, or if it was only used initially as a means to explain the increase in prices.[49] In theory, a food excise tax levied against the consumer at the point of purchase could minimise any undesirable behaviour by the food industry, and may provide a greater incentive for consumers to reduce their consumption of the targeted products. However, this option would be much more administratively burdensome on retailers.[50] Further, *ad valorem* rates are not optimal for changing consumption, but the imposition of a nutrient-based specific tax against retailers is not recommended

[47] Chriqui et al *State Sales Taxes on Regular Soda* 2.
[48] Pa. Code § 31(2)(4).
[49] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" *Wharton University of Pennsylvania*.
[50] Wright et al (2017) *BMC Public Health* 8-9; Chriqui et al *State Sales Taxes on Regular Soda* 2.

as it would impose an even larger administrative burden.[51] For these and other various reasons, excise taxes are generally charged against the manufacturers and importers of the targeted products.[52] For example: the SDIL is levied against manufacturers and importers of the relevant SDIL products; local manufacturers and importers of HPL products are subject to the HPL, in terms of the Duty-At-Source ("DAS") principle; and the PHPT is charged on the first domestic sale of PHPT products, against the domestic manufacturers or the first-time domestic sellers of PHPT products.[53]

The Ice Cream Tax in Demark is payable by the commercial manufacturers and importers of ice cream products, according to the volume of these products received from abroad or delivered from the manufacturers' premises during the tax period.[54] In the case of the Chocolate and Confectionery Tax and the Ice Cream Tax in Denmark, manufacturers and importers of lower-sugar products are required to provide the necessary documentation to establish the sugar content in their products.[55] The Saturated Fat Tax was payable by the following: local commercial producers of saturated fat foods; local commercial food manufacturers who used saturated fat foods to produce their foods exclusively for wholesale; commercial importers of saturated fat foods, who received these foods or commercially introduced these foods into Denmark from another country; and commercial distance sellers who sold saturated fat foods to local Danish non-traders, where these foods were shipped directly or indirectly by the seller or on his behalf.[56]

The SSBPT is charged on the "distribution" of certain SSB products in Berkeley.[57] The PBT is levied upon the final supply, delivery, acquisition or transport of the SSB to a "dealer," before the dealer makes retail sales of these drinks within

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[51] WCRF *Building momentum* 13. It is less onerous for retailers if the tax has already been paid at the producer level.
[52] Ecorys *Report* 55.
[53] Ss32-35 of the UK Finance Act 2017 c.10; *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 3-4; Torma "Hungary- Corporate Taxation- Country Analyses- 14. Miscellaneous Indirect Taxes" *IBFD Tax Research Platform*. These manufacturers and first-time sellers of PHPT products are liable, regardless of whether they sell these products to distributors or directly to consumers.
[54] *Bekendtgørelse nr 127 af 22.02.2018 af lov om afgift af konsum-is* § 2.
[55] § 5b.
[56] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 3(1)-(4).
[57] Berkeley, California, Municipal Code § 7.72.010, 7.72.030(G) & (L)-(M). The distributors of the relevant products are liable for SSBPT, and not the retailers or manufacturers. "Retailers" are defined in as "persons" who sell SSB products to consumers, and "persons" include individuals, trusts and various types of companies. Further, "consumers" are defined as natural persons who purchase SSB products in Berkeley, who do not re-sell these products in their normal course of business.

Philadelphia.[58] A "dealer" is anyone engaged in the business of retail sales of SSBs within Philadelphia, including distributors, retail stores, restaurants and vending machine owners and operators.[59] Provided that the notification requirements have been fulfilled, only distributors are liable to pay PBT; dealers are exempt.[60] Where a registered distributor is also a dealer, then such an entity is only liable to pay PBT once.[61] Dealers may only make retail sales of SSBs where: these SSBs were acquired from registered distributors; and registration and notification requirements have been fulfilled.[62] The implications that this provision has on the tax burden was challenged a number of times, most recently in the Pennsylvania Supreme Court in *Williams v City of Philadelphia* ("*Williams 2018*"),[63] discussed below.[64]

4 3 3 2 Implications of the Supplemental Nutrition Assistance Programme

The PBT has also been legally challenged on the grounds that such a tax is pre-empted by the Supplemental Nutrition Assistance Programme ("SNAP") legislation, which provides that taxes may not be levied on food items bought with SNAP benefits.[65] While a number of states and counties are discouraging SSB consumption through sales taxes or SSBs taxes, it could be argued that SSB consumption is effectively being subsidised through food assistance programmes.[66] SNAP is a federal programme, and is the largest of 15 nutrition programmes that are administered by the United States Department of Agriculture ("USDA"), under the Food and Nutrition Service ("FNS"). The objective of SNAP is as follows:

> "It is declared to be the policy of Congress, in order to promote the general welfare, to safeguard the health and well-being of the Nation's population by raising levels of nutrition among low-income households. Congress finds that the limited food purchasing power of low-income households contributes to hunger and malnutrition among members of such households. Congress further finds that increased utilization of food in establishing and maintaining adequate national levels of nutrition will promote the distribution in a beneficial manner of the Nation's agricultural abundance and will strengthen the Nation's agricultural economy, as well as result in more orderly

[58] Philadelphia, Pa., Municipal Code § 19-4103(1).
[59] § 19-4101(1)-(2). "Distributors" are any persons who supply SSBs to dealers.
[60] § 19-4105(1)-(2) & 1-109(2)(b). However, where notification requirements were not fulfilled, dealers are liable to pay PBT.
[61] § 19-4105(3).
[62] § 19-4102 & 19-4104.Briefly, these registration and notification requirements entail: distributors apply to the Department for registration; dealers notify the registered distributors that they are subject to PBT; and then registered distributors provide dealers with a confirmation of notification, and a receipt for the volume of SSBs supplied, and the tax liability for the transaction.
[63] 188 A.3d 421 (Pa. 2018).
[64] Discussed below under heading "5 2 1 2 Philadelphia Beverage Tax" in Chapter 5 of this thesis.
[65] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 587-594.
[66] Roache et al (2018) *FULJ* 1058.

> marketing and distribution of foods. To alleviate such hunger and malnutrition, a supplemental nutrition assistance program is herein authorized which will permit low-income households to obtain a more nutritious diet through normal channels of trade by increasing food purchasing power for all eligible households who apply for participation."[67]

The following foods may be purchased with SNAP benefits: fruits and vegetables; dairy products; meats, fish and poultry; breads and cereals; and seeds and plants suitable for household consumption. The dominant objective of SNAP is not health improvement, but improving equality and welfare.[68] While other nutrition programmes have a list of approved foods, SNAP does not distinguish between healthy foods and unhealthy foods: SSBs, ice cream, confectionery and other unhealthy snacks can be purchased with SNAP benefits.[69] States may not participate in the SNAP programme if "State or local sales taxes or other taxes or fees, including but not limited to excise taxes, are collected within the State on purchases made with food stamp coupons."[70] Therefore, although a number of local jurisdictions apply higher-than-standard sales tax rates or exclude SSBs from sales tax exemptions, these higher rates are not paid when consumers purchase these products with SNAP benefits. This provision is intended to prevent federal revenue from being transferred to State and local governments, which would compromise the welfare objective of SNAP, because costs would ultimately increase for lower-income consumers.[71]

Studies have shown that SNAP stimulates economic growth and employment, and successfully reduces food insecurity and poverty in general. Accordingly, it could be argued that decreased food insecurity will decrease negative health consequences associated with food insecurity, such as poor nutrient intake. However, a number of authors have argued that the current framework for SNAP overlooks an important opportunity to advance health objectives, by minimising dietary risk factors.[72] While there is some evidence that SNAP has a positive influence on nutritional quality, the fact that unhealthy foods and non-alcoholic beverages comprise a large portion of

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[67] 7 USC 2011.
[68] C Gunderson *SNAP and Obesity* (2013) Discussion Paper 2013-02 prepared for the University of Kentucky Centre for Poverty Research Discussion Paper Series (available at <https://pdfs.semanticscholar.org/ff81/e5330cee29837802bd7a4abdc1f249352ed3.pdf>) 2.
[69] USDA Food and Nutrition Service "Determining Product Eligibility for Purchase with SNAP Benefits" (26-01-2010) *USDA Food and Nutrition Service* <https://fns-prod.azureedge.net/sites/default/files/eligibility.pdf> (accessed 16-11-2018).
[70] 7 CFR § 272.1(b)(1)-(2).
[71] § 272.1(b)(1)-(2)..
[72] Jerrett (2018) *FDLJ* 482; Gunderson *SNAP and Obesity* 3.

SNAP expenditures is contrary to health objectives.[73] For example, the most-purchased item under this food assistance programme is SSBs, which accounts for around 9,3% of all SNAP purchases. Jerrett argues that the fact that the large volumes of unhealthy foods and non-alcoholic beverages are purchased with SNAP benefits is ultimately contrary to SNAP's objective:

> "The goal of SNAP is '[t]o alleviate... hunger and malnutrition' that stems from 'the limited food purchasing power of low-income households.' This $74billion programme is funded by the federal government and administered by the states....The contradictions behind the stated goal of SNAP and its actual use to purchase SSBs has been a source of consternation among public health advocates and was flagged as a potential area for reform in advance of the 2014 Farm Bill. Cities, states, and health groups have long called for the freedom to restrict the purchase of soda with SNAP dollars."[74]

A number of states and localities have requested state waivers to exclude SSBs from SNAP benefits. However, for various reasons, these requests have been denied. The FNS has argued that excluding unhealthy foods from SNAP benefits would lead to: further stigmatization of lower socio-economic groups, which is contrary to the objectives of SNAP; burdensome changes to point-of-sale systems used in grocery stores; and increased administrative costs, for very little or no change in diet.[75] The FNS further argues that SNAP participation has not been proven to contribute to unhealthy diets, and that, regardless of restrictions, the majority of SNAP participants would likely continue to purchase the restricted foods with their own income.[76]

4 4 Taxes targeting sugar-sweetened beverages

4 4 1 Taxes on all sugar or certain sugar-sweetened products

Where governments intervene with food excise taxes, the tax base should not be defined too narrowly, and similar products should be taxed in the same manner. If a food excise tax only covers a small range of products, and cheaper substitutes exist, then consumers could replace the targeted products with similar, untaxed products.

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[73] Jerrett (2018) *FDLJ* 482-483.
[74] 7 USC 2011; Jerrett (2018) *FDLJ* 483-484.
[75] C Dewey "State group: USDA mulling big changes to food stamps, including allowing states to impose soda ban" *Washington Post* (08-12-2017) <https://www.washingtonpost.com/news/wonk/wp/2017/12/08/state-group-usda-mulling-big-changes-to-food-stamps-including-allowing-states-to-impose-soda-ban/?utm_term=.2bfb296a8ee3> (accessed 16-04-2019).
[76] USDA FNS *Implications of Restricting the Use of Food Stamp Benefits- Summary* USDA Food and Nutrition Service Report (2007) 1.

These substitutes are not necessarily healthier than the targeted products, so the substitution effect could mitigate the health impact of the tax.[77] Although not implemented for health objectives, the differentiated VAT rates in the UK demonstrate the importance of considering substitution when defining the tax base. Because biscuits and cakes could be considered close substitutes, consumers could substitute taxed biscuits with untaxed cakes under this VAT system. If these differentiated rates were used in order to reduce sugar consumption, this substitution would frustrate the reprising objective.[78]

The HPL has been criticised for only targeting SSBs, and not a broader range of sugar-sweetened products.[79] However, it may not be practical or even possible to introduce a tax that covers all possible substitutes. Similarly to how it would not be practical to tax all calories, it would probably not be practical to tax all sugar. In theory, while a tax levied on sugar cane at the place of production might lead to price increases for all sugary products, such a tax has not been introduced for various reasons. In the *Prevention Commission's Recommendations,* for example, it was provided that the introduction of a new a tax on pure sugar would be administratively burdensome, and disruptive to competition. It was therefore concluded that, in order to reduce sugar consumption, it would be better to increase the existing taxes on soft drinks, ice cream, chocolate and confectionery.[80] In discussing the formulation options for a tax targeting sugar consumption in Australia, Lloyd and MacLaren explain a number of the issues with the argument that all sugar should be taxed:

> "There is an obvious argument for taxing the sugar content of all foods and drinks. It is the sugar consumption from all forms and sources that damages the health of some individuals. Taxing only SSBs is like taxing only beer and not liquors and wine. For example, confectionery and chocolates are a major source of excess sugar consumption. Breakfast cereals, 'treats' and lollies given to children are also a major source of excess sugar consumption for this age group. Counting against this proposal, however, is the difficulty of drawing the boundary for such a broad product group... Moreover, this proposal would impose large compliance costs on manufacturers who would have to test and certify the sugar content of all sugary foods and drinks. And who would certify the sugar content of imported sugary foods and drinks? An alternative is to tax sugar milled in Australia by means of a sugar excise tax coupled with an equal import duty on sugar imported in a raw or refined state. This would be much simpler and impose much lower compliance costs than taxing the sugar content of foods and drinks... Imports of sugar could be taxed on entry. This tax

[77] Wright et al (2017) *BMC Public* Health 7.
[78] Mirrlees et al *Tax by Design* 34.
[79] RSA National Treasury & SARS *Final Response Document* 6.
[80] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 131.

would not, however, cover the sugar content of processed foods and drinks imported into Australia. To do so would require testing and certification of imports."[81]

There are a number of other reasons why taxing all sugar is not practical, including that: there is a wide range of food and drink products that contain sugar; sugar is not only used in foods and drinks, but may be used for the manufacture of biodegradable fuels and other useful commodities; and a number of jurisdictions use subsidies and import tariffs to protect their domestic sugar farming industry. The imposition of a tax on sugar cane is problematic for countries where sugar manufacture contributes significantly to the economy. For example, it has been estimated that the South African sugar industry contributes around R14 billion to the national economy annually, "given its agricultural and industrial investments, foreign exchange earnings, labour-intensity (especially in rural areas) and direct linkages with other downstream industries."[82] While it could be argued that taxing sugar in this way might achieve optimal health outcomes, it would be much more administratively burdensome, and would likely be very detrimental to the economy.

It should further be noted that, in order to achieve optimal results in line with such a rationale, it would probably be necessary to target all sources of dietary sugars. As highlighted in the case of the 2002 Mexican Sweetener Tax, sugar cane is not the only source of dietary sugars, or even of added sugars. For the purposes of the Flavoured Drinks Tax in Mexico, "sugar" includes monosaccharides, disaccharides and polysaccharides where these are used as calorific or nutritive sweeteners.[83] Further, the SSBPT in Berkeley targets drinks containing "added caloric sweeteners," including sucrose, glucose, fructose and high-fructose corn syrup ("HFCS").[84] For purposes of the PHPT: "sugar" includes: cane sugar or beet sugar; chemically pure sucrose, lactose, glucose, maltose and fructose, in their solid form; artificial honey, regardless of whether it contains natural honey; caramel; and other unflavoured and uncoloured sugar syrups.[85] In addition to added sugars, there are

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[81] P Lloyd & D MacLaren "Should We Tax Sugar and If So How?" (2019) 52 *Australian Economic Review* 19 24.
[82] SASA "Home" (16-04-2019) *SASA* <https://sasa.org.za/> (accessed 27-05-2019).
[83] Art 3(XX) *de la Ley del Impuesto Especial Sobre Producción Servicios.*
[84] Berkeley, California, Municipal Code § 7.72.030(A)(4).
[85] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(2); European Commission "TARIC Consultation" (30-05-2018) *European Commission-Taxation and Customs Union* <http://ec.europa.eu/taxation_customs/dds2/taric/taric_consultation.jsp?Lang=en&Taric=&Expand=true&Area=&SimDate=20180530&GoodsText=&OrderNum=&StartPub=&EndPub=&Regulation=&LastSelectedCode=> (accessed 30-05-2018) TARIC headings 1701-1702.

many dietary sources of intrinsic sugars. For example, intrinsic sugar is present in milk and most fruits and vegetables, which are generally regarded as healthy. Unlike SSBs containing added sugars exclusively, these potential substitute beverages offer some additional nutritional value. For example, milk is described as an important source of protein, calcium and vitamin D, and fruit juice might be an important dietary source of antioxidants and certain vitamins and minerals.[86] However, excessive consumption of milk and fruit juice respectively has been associated with: the incidence of certain cancers; and weight gain and increased dental caries.[87]

The *Policy Paper* provides that beverages containing only intrinsic sugars should be excluded from the HPL, because it is the added sugars in SSBs that have negative health effects.[88] Accordingly, 100% fruit and vegetable juices and unsweetened milk and milk products are not subject to the HPL.[89] However, the "sugar" content for purposes of HPL means the total sugar content, including intrinsic sugar, added sugar and "other sweetening matter."[90] Therefore, where sugar is added to any of the would-be exempt products, and the total sugar content in the final product exceeds the tax-free threshold, these products are taxed according to their total sugar content, and no distinction is made between their intrinsic sugar and added sugar contents.[91] The SDIL targets SSBs that contain "added sugar ingredients," that "are combined with other ingredients at any stage" of production. These added sugar ingredients include calorific mono- and disaccharides and other substances containing these types of sugars.[92] Further, the definition of added sugar

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[86] GM Singh, R Micha, S Khatibzadeh, P Shi, S Lim, KG Andrews, RE Engell, M Ezzati & D Mozaffarian "Global, Regional, and National Consumption of Sugar-Sweetened Beverages, Fruit Juices, and Milk: A Systematic Assessment of Beverage Intake in 187 Countries" (2015) 10 *PLoS ONE* 1 2. Dietary intake of calcium, vitamin D and these proteins from milk consumption might be particularly important for the elderly and children.

[87] Singh et al (2015) *PloS ONE* 2*;* Y Song, JE Chavarro, Y Cao, W Qiu, L Mucci, HD Sesso, MJ Stampfer, E Giovannucci, M Pollak, S Liu & J Ma "Whole Milk Intake Is Associated with Prostate Cacner-Specific Mortality among U.S. Male Physicians" (2012) 143 *JN* 1 2; BA Dennison, HL Rockwell & SL Baker "Excess fruit juice consumption by preschool-aged children is associated with short stature and obesity" (1997) 99 *Pediatrics* 15 15. For example, Song et al found that milk consumption was associated with higher incidence of prostate cancer, and Dennison et al concluded that daily fruit juice consumption exceeding 12oz (around 355ml) was associated with obesity and shorter stature for young children.

[88] RSA National Treasury *Policy Paper* 3.

[89] RSA National Treasury & SARS *Final Response Document* 6.

[90] Note 4 to Part 7A of Schedule No. 1 of the Customs and Excise Act.

[91] RSA National Treasury & SARS *Final Response Document* 7.

[92] S29(2) of the UK Finance Act 2017 c.10.

ingredients for purposes of the SDIL does not include intrinsic sugars from milk and fruit and vegetable juices.[93]

In addition to the SSB category, the PHPT in Hungary has four other categories of products targeting sugar: flavoured beer; alcoholic refreshments; fruit jams; and confectionery products.[94] Griffith et al provide that food excise taxes aimed at reducing sugar consumption should target food products that represent a large portion of sugar consumption in the particular jurisdiction.[95] For example, of the total sales of dietary sources of added sugars in the UK in 2016, 17% comprised of soft drinks, while chocolate and confectionery comprised 18%.[96] Where SSBs are not the largest source of dietary sugar, it might be more effective to impose a tax on other foods that represent a larger portion of sugar consumption, such as chocolate, confectionery, cakes, biscuits and ice cream. However, these other dietary sources of sugar may contain other beneficial nutrients apart from sugar, which are more satiating and increase "nutritionally adequate" calorie consumption.[97] Therefore, while SSBs might not represent the largest share of sugar intake, most jurisdictions do not impose sugary food taxes, because: it is more difficult to reformulate these products; it is more administratively complicated to calculate the sugar content in these products; these taxes have a larger regressive impact, because these foods offer additional nutritional value and the scope of these products is much broader than SSBs; and the substitution effects are more complicated with foods than with beverages.[98]

National Treasury and SARS have explained that sugar in sugary beverages will be targeted instead of other ingredients in other foods, because sugar is a clear contributor to obesity and NCDs, and the HPL will be an effective mechanism to combat excessive sugar consumption.[99] Sugary drinks have been shown to significantly contribute to rising levels of obesity, because this liquid energy is not as satisfying as solid foods, so consumers tend to consume more calories.[100] The sugar in fruit, and even in sugary confectionery, is accompanied by fibre, which "digests

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[93] S29(3).
[94] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(c) & 2(f)-(h).
[95] Griffith et al *Using taxation* 8.
[96] 8.
[97] RSA National Treasury & SARS *Final Response Document* 6.
[98] Griffith et al *Using taxation* 12; Ecorys *Report* 39-40.
[99] RSA National Treasury & SARS *Final Response Document* 5.
[100] Mann (2017) *Environmental Law* 699.

more slowly than liquid, and the sugar is thus released more slowly in the bloodstream." Because the added sugar in SSBs is not accompanied by fibre, this form of sugar consumption has a number of harmful health effects, including that because: this sugar is processed more quickly in the liver and pancreas, it could eventually cause NCDs such as liver disease, heart disease and Type 2 Diabetes Mellitus ("T2DM"); and triglycerides are produced in the body in response to this sugar, this leads to increases in the risk for heart attacks.[101]

While this decision has been criticised, it is submitted that it is probably sensible to limit the scope of the HPL to SSBs. The majority of other jurisdictions have limited these taxes to SSBs specifically, and there is limited available research on the effectiveness of taxes that target a broader range of products. Further, due to the nature of these other foods, it is difficult to evaluate the overall impact on consumption of taxes that target a broader and more complicated range of food products.[102] However, because the *Final Response Document* provides that "the sugar in other products would also need to be addressed" and the that "100% fruit juice and vegetable juice, unsweetened milk and unsweetened milk products... exemptions will be reconsidered in the future," it is useful to consider the experiences from other jurisdictions that have targeted a broader range of sugar-sweetened foods and beverages, as well as other unhealthy nutrients and ingredients.[103] Further, although fruit juice provides "relative nutritional value and contributions to rural employment and incomes," the "effects of fruit juice on weight gain and diabetes are comparable to those of other sugary beverages."[104] However, most jurisdictions exclude 100% fruit juices from their SSB taxes, and Stacey et al (2017) provided the negligible own-price elasticity for these beverages suggested that the "public health arguments for their inclusion" would "not yield meaningful

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[101] C van Walbeek *Sugar Tax: Lessons from International Experience for Developing Countries* (2019) unpublished paper presented at a Government Technical Advisory Centre workshop at a conference on *A New Dawn: Rebuilding State Capacity (Public Economics Winter School 2019)* hosted by National Treasury in partnership with Global Affairs Canada at the South African Reserve Bank, Pretoria, 08-07-2019 – 12-07-2019 (available at < https://www.gtac.gov.za/Eventdocs/Sugar%20Tax%20Lessons%20From%20International%20Expereince%20For%20Developing%20Countries%20Presentation%20by%20Professor%20Corn%C3%A9%20van%20Walbeek.pdf>) 7.

[102] Wright et al (2017) *BMC Public Health* 7.

[103] RSA National Treasury & SARS *Final Response Document* 6.

[104] Stacey et al (2017) 105 *Prev. Med* S29.

reductions in sugar intake from their consumption" in 2017.[105] These authors caution however, that the food industry could respond to the HPL by promoting 100% fruit and vegetable juices as substitutes for the targeted SSBs.[106]

4 4 2 Tax rate structure and thresholds

4 4 2 1 Options for specific tax rates

Apart from the distinction between specific and *ad valorem* rates, there are a number of design options for specific tax rates that might influence the tax's potential to reduce consumption or incentivise reformulation. These options include a flat levy, a levy based on the total content of the targeted nutrient in the relevant product, and a differentiated levy that applies to different threshold contents of the targeted nutrient.[107] In the case of a flat levy, the same rate applies according to some quantitative measure of the product itself, regardless of the quantity of the targeted nutrient. For example: the Flavoured Drinks Tax in Mexico is levied at MXN 1,17 per litre of non-alcoholic beverages with any added sugar content;[108] and the SSBPT is charged at $0,01 per fluid ounce on certain SSB products in Berkeley.[109] A food excise tax formulated in this manner is relatively simple to administer, but is not the most effective for reducing sugar consumption, because: it provides little incentive to consumers to reduce their sugar consumption by replacing more sugary SSBs with less sugary SSBs, as the prices for all SSBs increase by the same amount; and, unless manufacturers can escape the liability for the tax by eliminating the target ingredient from their products entirely, there is no incentive for them to reformulate their products to contain less sugar.[110]

Although it might be more administratively complicated, the use of a threshold for sugar content in SSBs may improve the ability of a flat levy to achieve health objectives. After differentiated rates were introduced for lower- and higher-sugar products, Soda Tax in Denmark is an example of such a formulation. To have a greater impact on health objectives in this way, the Flavoured Drinks Tax could be levied at a flat rate of MXN 1,17 per litre of SSBs that contain an excess of a certain

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[105] RSA National Treasury & SARS *Final Response Document* 6; Stacey et al (2017) 105 *Prev. Med* S29.
[106] Stacey et al (2017) 105 *Prev. Med* S29.
[107] RSA National Treasury *Policy Paper* 15.
[108] Arts 2(I)(G), 3(XVIII), 10 & 12 *de la Ley del Impuesto Especial Sobre Producción Servicios.*
[109] Berkeley, California, Municipal Code § 7.72.010.
[110] RSA National Treasury *Policy Paper* 18.

sugar threshold. Although this is technically how the Flavoured Drinks Tax already operates, the provision for a 5 grams per 100 millilitres threshold, for example, could provide incentive for: consumers to substitute towards the less sugary products, because ASBs and SSBs with a sugar content below 5 grams per 100 millilitres could become relatively cheaper than SSBs in excess of this threshold; and manufacturers to reformulate their SSB products so that their sugar content becomes less than 5 grams per 100 millilitres.

It has been argued that because added sugars have no nutritional value, each gram of sugar in SSBs or sugary foods should be taxed. While the use of a threshold might provide a greater incentive for manufacturers to reformulate, a tax applied specifically to the sugar content is the potentially the best target for incentivising reduced sugar consumption. Where each gram of sugar is taxed ("*tax-per-gram*"), the prices of the taxed beverages should increase according to their impact on the health concerns. This approach has been used in Mauritius, which levies an SSB tax at the rate of 3 cents per gram of sugar contained in the targeted SSBs.[111] Taxes based on the total content of the targeted nutrient in a particular food product are more administratively complicated, but are likely to be more successful in achieving health objectives than flat levies. The HPL has combined these two approaches: only SSBs with a sugar content exceeding 4 grams per 100 millilitres are taxable; and the sugar content in excess of this threshold is taxed at 2,21 cents per gram of sugar.[112]

More recently, there has been increasing interest in the use of differentiated tax rates that apply "tiers" or "bands" according to different threshold contents of the nutrients targeted by the tax. This option might provide the greatest incentive to manufacturers to reformulate their products.[113] For example, the SDIL introduced in the UK in April 2018 and the SSB tax introduced in Thailand in September 2017 have specifically used this approach to encourage reformulation.[114] In Thailand, differentiated rates according to various sugar thresholds, and these rates and thresholds are adjusted over a number of years in order to normalise this tax among

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[111] 18-24.
[112] Part 7A of Schedule No. 1 of the Customs and Excise Act.
[113] RSA National Treasury *Policy Paper* 18.
[114] S36 of the UK Finance Act 2017 c.10; USDA Foreign Agricultural Service *Thai Excise Department Implements New Sugar Tax on Beverages* USDA Global Agricultural Information Network Report TH7138 (2017) 2; WCRF *Building momentum* 12.

the public.[115] For example, SSBs with a sugar content of less than 6 grams per 100 millilitres are exempt, and the per litre tax rates for SSBs from September 2017 to September 2019 are: THB 0,10 where the sugar content is between 6 grams and 8 grams per 100 millilitres; THB 0,30 where the sugar content is between 8 grams and 10 grams per 100 millilitres; THB 0,50 where the sugar content is between 10 grams and 14 grams per 100 millilitres; and THB 1,00 where the sugar content exceeds 14 grams per 100 millilitres. By October 2023, the following per litre tax rates and thresholds will apply: THB 1,00 where the sugar content is between 6 grams and 8 grams per 100 millilitres; THB 3,00 where the sugar content is between 8 grams and 10 grams per 100 millilitres; and THB 5,00 where the sugar content exceeds 10 grams per 100 millilitres.[116] This tax allows for gradual product reformulation, which could be conducive to changing consumers' tastes as well as mitigating some of the increased costs to manufacturers.

4 4 2 2 Soft Drinks Industry Levy in the United Kingdom

Similarly to the SSB tax in Thailand, the SDIL also uses a tiered system with different rates according to the level of sugar content in the relevant SSBs.[117] This SSB tax is unique from the others discussed in this thesis, in that it applies three tiers, in terms of which: "low-sugar" non-alcoholic beverages have a sugar content of less than 5 grams per 100 millilitres; "medium-sugar" SSBs have a sugar content between 5 grams and 8 grams per 100 millilitres; and "high-sugar" SSBs have a sugar content in excess of 8 grams per 100 millilitres.[118] In terms of this tax, low-sugar SSBs are exempt, while: medium-sugar SSBs are taxed at £0,18 per litre; and high-sugar SSBs are taxed at £0,24 per litre.[119] While public health campaigners, such as Action on Sugar, advocate that chocolate and confectionery should be taxed alongside SDIL products, opponents criticise these taxes because of their potentially regressive effects on consumers. Sugar taxes on a narrower range of products are likely to have a less regressive impact.[120] It has further been rationalised that an SSB tax that applies different bands or thresholds could have an even less

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[115] WCRF *Building momentum* 12; USDA Foreign Agriculture Service *Thai Excise Department Implements New Sugar Tax* 2.
[116] USDA Foreign Agriculture Service *Thai Excise Department Implements New Sugar Tax* 2-3..
[117] WCRF *Building momentum* 12; S36 of the UK Finance Act 2017 c.10.
[118] Briggs et al (2017) *Lancet Public Health* e16.
[119] Ss 36(1)-(2) of the UK Finance Act 2017 c.10.
[120] Griffith et al *Using taxation* 12.

regressive impact than an SSB tax that targets each gram of sugar. Accordingly, the UK government has specifically appealed to the food industry to reformulate their SSB products to contain less sugar, instead of passing on the increased prices to consumers.[121]

While both approaches would provide some incentive for manufacturers to reformulate their products, it could be argued that the use of multiple bands or thresholds is more effective in this regard than a tax levied according to the total sugar content. For example, the *tax-per-gram* rate for an SSB containing 10 grams of sugar per 100 millilitres would need to be £0,0024 per gram of sugar, in order to translate to a £0,24 price increase per litre. Depending on the costs to reformulate, manufacturers would be more inclined to reduce the sugar content where these two bands are applied: for the 8 gram threshold, only 2 grams of sugar needs to be removed for the tax liability to be reduced by £0,06 per litre, compared to the £0,0048 per litre reduction in liability where 2 grams of sugar is removed and a the tax is levied on each gram; and for the 5 gram threshold, the tax liability could be completely eliminated if 5 grams of sugar is removed, compared to the £0,012 per litre reduction in liability if 5 grams of sugar is removed and the tax is levied on each gram of sugar. However, it could be argued that a *tax-per-gram* rate provides greater incentive for manufacturers to remove more sugar than the scenario where the tax is only levied above the sugar content excluded by the 5 grams per 100 millilitres tier. Where products are reformulated and prices do not increase, the effects on consumption might be less noticeable. However, it is submitted that, where the costs of reformulation are reasonably low, relatively smaller consumption changes from an SSB tax that applies different bands might still be beneficial for health outcomes in that consumers' taste preferences for soft drinks could gradually change towards less sugary options.

4 4 3 Scope of products targeted

4 4 3 1 Ready-to-drink sugar-sweetened beverages

Among others, the HPL is payable on: chocolate and cocoa beverages; drinking straws that contain flavouring preparations; waters that contain added sugar or other

[121] UK HM Revenue & Customs "Policy paper: Soft Drinks Industry Levy" (05-12-2016) *GOV.UK* <https://www.gov.uk/government/publications/soft-drinks-industry-levy/soft-drinks-industry-levy#further-information> (accessed 27-06-2019).

sweetening matter; and certain non-alcoholic beers. HPL is levied at the rate of 2,21 cents per gram of sugar in these products above a tax-free threshold of 4 grams per 100 millilitres sugar content.[122] A similar tax-free threshold is used under the SDIL in the UK: SSBs that contain less than 5 grams of sugar per 100 millilitres are excluded from the tax; and a higher rate is applicable for SSBs in excess of eight grams of sugar per 100 millilitres.[123] For purposes of the SDIL, taxable SSBs include beverages with an alcoholic strength of less than 1,2% and preparations for making these beverages.[124] The PHPT SSBs category includes pre-packaged sugar-sweetened soft drinks, such as sweetened waters containing added sugar, aerated waters and mineral waters.[125] The threshold sugar content for this PHPT category is 8 grams per 100 millilitres.[126] In 2011, the per litre tax rate for soft drinks was HUF 5, which increased to HUF 7 in 2012.[127] Since 2019, the per litre tax rate for soft drinks has increased to HUF 15.[128]

Among others, the Danish Soda Tax was charged on carbonated and non-carbonated non-alcoholic beverages.[129] As discussed above, the rates for the Danish Soda Tax were only differentiated from 2010, according to a 0,5 grams per 100 millilitres threshold sugar content.[130] However, it should be noted that this was not a tax-free threshold; the relevant beverages with a sugar content of less than 0,5 grams per 100 millilitres were merely subject to a lower rate of tax. “Sugary drinks” that would have been subject to the Portion Cap Rule in NYC were defined as both carbonated and non-carbonated sugar-sweetened non-alcoholic beverages that contain more than 25 calories per eight fluid ounces (around 236,59 millilitres).[131] If 100 grams of granulated sugar provides around 387 calories, and granulated sugar were the only source of energy in the relevant SSB, then this two calories per fluid

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[122] Part 7A of Schedule No. 1 of the Customs and Excise Act.
[123] S29(1) of the UK Finance Act 2017 c.10.
[124] S26(1).
[125] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a); European Commission “TARIC Consultation” *European Commission-Taxation and Customs Union* TARIC headings 2009 and 2202.
[126] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a).
[127] § 6(a).
[128] *2018. évi XLI. Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* [Law amending certain tax laws] § 136 & 255.
[129] *Bekendtgørelse nr. 419 af 07.05.2012 af lov om afgift af mineralvand m.v*. [Executive Order on the Soda Tax] § 1.
[130] § 2.
[131] NYC Health Code § 81.53(a)(1).

ounce threshold translates to around 2,73 grams of sugar per 100 millilitres.[132] For the purposes of SSBPT in Berkeley, SSBs are defined as beverages intended for human consumption, which contain added caloric sweetener and have a minimum energy content of two calories per fluid ounce, including soda, energy drinks and sports drinks.[133] If the example of granulated sugar is used again, the two calories per fluid ounce threshold translates to around 1,76 grams of sugar per 100 millilitres.[134]

While the thresholds for purposes of the Danish Soda Tax and the SSBPT are much lower than the 4, 5 and 8 grams per 100 millilitres thresholds for the HPL, SDIL and PHPT respectively, the threshold sugar content for the Flavoured Drinks Tax in Mexico is even lower: the only requirement for this tax to apply to the relevant flavoured drinks in terms of sugar content is that these drinks contain any amount of added sugars.[135] Flavoured drinks are described as both carbonated and non-carbonated non-alcoholic beverages, made by dissolving any type of sugar in water, which may also contain natural or synthetic flavours, fruit and vegetable juice and other ingredients.[136] Further, unlike these other taxes, the PBT is not an SSB tax, and makes no distinction between SSBs and ASBs. The PBT applies to soft drinks, which are defined as non-alcoholic beverages or concentrates for preparing non-

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[132] FoodData Central "Food Search > Sugars, granulated (SR Legacy, 169655)" (01-04-2019) *FoodData Central* <https://fdc.nal.usda.gov/fdc-app.html#/food-details/169655/nutrients> (accessed 05-11-2019); Metric Conversions "Metric Converter > Volume Converter > US Fluid Ounces Conversion > US Fluid Ounces to Milliliters" (22-07-2018) *Metric Conversions* <https://www.metric-conversions.org/volume/us-ounces-to-milliliters.htm> (accessed 05-11-2019). If 100g of granulated sugar contains 387kcal, then 2kcal of granulated sugar translates to around 0,52g ([100g/387kcal] X 2kcal). Further, 1 fl oz translates too around 29,57ml, and 100ml translates to around 3,38 fl oz (100ml/29,57ml), and the metric equivalent of 2kcal/1 fl oz is 1,76g/100ml (0,52g X 3,38g).

[133] Berkeley, California, Municipal Code § 7.72.030(O).

[134] FoodData Central "Food Search > Sugars, granulated (SR Legacy, 169655)" *FoodData Central;* Metric Conversions "Metric Converter > Volume Converter > US Fluid Ounces Conversion > US Fluid Ounces to Milliliters" *Metric Conversions*. If 100g of granulated sugar contains 387kcal, then 2kcal of granulated sugar translates to around 0,52g ([100g/387kcal] X 2kcal). Further, 1 fl oz translates too around 29,57ml, and 100ml translates to around 3,38 fl oz (100ml/29,57ml), and the metric equivalent of 2kcal/1 fl oz is 1,76g/100ml (0,52g X 3,38g).

[135] Art 2(I)(G) *de la Ley del Impuesto Especial Sobre Producción Servicios.*

[136] Arts 2(I)(G), 3(XVIII) & 3(XX). As discussed above under heading "2 3 2 3 Soft drinks taxes and Junk Food Tax in Mexico" in Chapter 2 of this thesis, these beverages are defined as non-alcoholic beverages manufactured by dissolving sugars in water, which may also contain other ingredients, including: natural or artificial flavourings; or juice, nectar or pulp from fruits, vegetables or legumes. "Sugars" are defined as monosaccharides, disaccharides and polysaccharides with caloric intake. Further, in addition to the energy drinks tax, these beverages are taxed under the Flavoured Drinks Tax where they contain any added sugars

alcoholic beverages, containing either: any sugar-based caloric sweeteners; or artificial sugar sweetener substitutes.[137]

As discussed above, Denmark, Hungary, Mexico, the UK and the USA have mandatory regulations for the provision of nutritional information on pre-packaged foods.[138] In addition to improving the food information environment, such regulations enhance the administrative efficiency of SSB taxes that apply tax-free thresholds or tax each gram of sugar. The current labelling regulations in South Africa, however, are arguably not optimal for the administration of the HPL. The sugar content for ready-to-drink HPL products is calculated according to "the sugar content as certified on a test report obtained and retained from a testing laboratory accredited with and using methodology recognised by the" SANAS or the ILAC.[139] In the absence of a satisfactory label or report, the sugar content is deemed to be 20 grams per 100 millilitres.[140] This provision for deemed sugar content is intended to provide an incentive to manufacturers to comply with labelling guidelines, because 20 grams of sugar per 100 millilitres is above the average sugar content in ready-to-drink SSBs.[141]

4 4 3 2 Syrups and preparations for making sugar-sweetened beverages

The *Policy Paper* originally recommended that the tax be levied on each gram of sugar, so no provision was made for how concentrates should be treated.[142] However, it was provided that "fruit juice concentrates have anything between 20% and 50% fruit juice content and are normally diluted on a 1:4 basis."[143] The introduction of the threshold sugar content has presented challenges for how this threshold should translate to concentrates. In order to support the health objective and minimise undesirable substitution effects, the prices of syrups and concentrates should increase by the same proportional amount as for ready-to-drink SSBs. It was

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[137] Philadelphia, Pennsylvania, Municipal Code § 19-4101(3). Examples of these soft drinks include: soda; flavoured water; sports drinks; energy drinks; sweetened coffee and tea drinks; certain fruit drinks; and non-alcoholic drinks designed to be mixed with an alcoholic drink. Sugar-based caloric sweeteners include glucose, sucrose and HFCS. Artificial sugar sweetener substitutes include aspartame, stevia, saccharin, sucralose, advantame, acesulfame potassium and neotame.

[138] Discussed above under heading "2 2 2 Labelling regulations" in Chapter 2 of this thesis.

[139] Para 5(a) of Notes to Part 7A of Schedule No. 1 of the Customs and Excise Act.

[140] Para 6(c).

[141] RSA National Treasury *Policy Paper* 3; RSA National Treasury & SARS *Final Response Document* 9.

[142] RSA National Treasury *Policy Paper* 21.

[143] 17.

originally proposed that concentrates should be subject to a lower rate of 1,05 cents per gram of sugar exceeding the 4 grams per 100 millilitre threshold, with no reference to dilution ratios.[144] However, the Amendment Act provided that the sugar content for these products "must be calculated based on the total volume of the prepared beverage when mixed or diluted according to the manufacturer's product specifications." This provision was amended in April 2019, and the sugar content for these products is currently calculated according to:

> (a) "the sugar content as certified on a test report as contemplated in paragraph 5(a) above of the total volume of the prepared beverages when mixed or diluted according to the manufacturer's product specifications; and
>
> (b) the average sugar content as certified on such test report of the sugar content for all the prepared beverage options when mixed or diluted according to the manufacturer's multiple product specifications; or
>
> (c) in the absence of such a test report, the sugar content of the prepared beverage will be deemed to constitute 20 grams per 100 millilitres should the concentrate or preparation be mixed or diluted at a ratio of one to nine parts water."[145]

In addition to ready-to-drink SSBs, the SDIL in the UK also applies to liquids which, "when prepared in a specified manner," constitute such SSBs.[146] In order to be classified as such, these liquids are required to be prepared by way of one or a combination of the following processes: dilution with water; combination with carbon dioxide; or combination with or "processed so as to create crushed ice."[147] The SDIL is charged according to the sugar content of these "prepared drinks," when diluted "in accordance with the relevant dilution ratio."[148] This "relevant dilution ratio" is either: "the dilution ratio stated on, or calculated by reference to information stated on, the packaging of the soft drink;" or determined by the tax authorities in instances where the packaging does not stipulate the dilution ratio, or where "it is reasonable to assume that the main purpose, or one of the main purposes of stating that particular dilution ratio or information is avoiding or reducing" the amount of SDIL payable.[149]

The use of tax-free thresholds presents an opportunity for avoidance, particularly in the case of syrups and concentrates. This is evident from the provisions in South Africa and the UK for assuming a relatively high sugar content, or allowing tax

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[144] RSA National Treasury, Standing Committee on Finance and Portfolio Committee on Health *Sugary beverages tax (SBT)* (2017) National Treasury presentation, 31-05-2017 (available at <https://pmg.org.za/committee-meeting/24530/>).
[145] Para 6 of Notes to Part 7A of Schedule No. 1 of the Customs and Excise Act.
[146] S26(1)(b) of the UK Finance Act 2017 c.10.
[147] S26(2).
[148] S27(1)(b).
[149] s27(2)-(4).

authorities to make a determination on the sugar content. In Hungary, however, the same tax-free threshold for ready-to-drink SSBs is applied to sugar-sweetened syrups, but these are taxed at a higher rate. These sugar-sweetened syrups are described as water- and extract-based flavourings containing sugar, which are used for the preparation of soft drinks.[150] Because both of these categories of SSBs are taxed at a flat rate per litre above the sugar content threshold, the need for complicated calculations and other provisions for avoidance are limited. This formulation has a weaker link to the health objective however, and provides limited incentive for manufacturers to reformulate because the threshold is relatively low.[151] From 2012 to 2018, the tax rate for these syrups was HUF 200 per litre, which increased to HUF 240 per litre in 2019.[152]

After the differentiated rates for the Soda Tax were introduced in Denmark, the tax payable on concentrates that were intended for commercial production of carbonated soft drinks was calculated according to the sugar content in the readily drinkable product, based on the manufacturers' directions for dilution on the product's packaging. Further, the package of imported concentrates needed to contain a declaration: that the product was a concentrate, intended for commercial production in small appliances; and on how many litres could be produced with the concentrate.[153]

In addition to SSBs, the SSBPT also targets "added caloric sweeteners," which are defined as substances or mixtures of substances used to make SSBs, through mixing with other substances such as water, tea or fruit juice.[154] The amount of tax payable is calculated according to the maximum volume of SSBs that could be produced from these added caloric sweeteners, according to the manufacturers' directions for dilution.[155]

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[150] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(14) & 2(a).
[151] § 2(a) & 6 (a).
[152] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(a); *2018. évi XLI. Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* [Law amending certain tax laws] § 136 & 255.
[153] *Bekendtgørelse nr. 419 af 07.05.2012 af lov om afgift af mineralvand m.v.* § 1, 2 & 5.
[154] Berkeley, California, Municipal Code § 7.72.030(A) & (O)-(P). In order to be classified as an added caloric sweetener, these sweeteners are also required to be suitable for human consumption, and when consumed, to: be perceived as sweet by the consumer; and add energy to the diet of the consumer. Added caloric sweeteners may be in any presentation, including syrups, liquids or powders. Fructose, sucrose, glucose, HFCS and other sugars are examples of added caloric sweeteners.
[155] § 7.72.0310(B).

The calculation of the tax payable under the PBT and Mexico's Flavoured Drinks Tax is simpler than for these other SSB taxes discussed, because the relevant SSBs are not taxed according to their sugar content: the PBT applies to both ASBs and SSBs; and the Flavoured Drinks Tax applies where the relevant products contain any amount of added sugar. For both of these taxes, the taxable volume is calculated according to the total volume of the relevant beverages that can be prepared according to the manufacturers' dilution specifications.[156] Mexico's Flavoured Drinks Tax also applies to concentrates, syrups and preparations for making these beverages, including where these are used in machines to make and dispense these beverages. However, this tax is not payable when these beverages are made and sold in establishments that provide food and beverages services, such as restaurants and bars.[157] In contrast, the PBT is only payable on syrups and concentrates for the commercial manufacture or retail sale of the prepared beverages, and not those for the production of beverages by the consumers themselves.[158]

4 4 3 3 Exemptions and exclusions

Most SSB and soft drinks taxes exclude certain milk drinks and 100% fruit and vegetable juices.[159] Alcoholic beverages, certain medicines and infant formula are also commonly excluded from these taxes. In South Africa, a refund is available for the full amount of HPL paid on HPL goods that are used in the manufacture of other goods that are not subject to HPL, and the duty is not payable on HPL products that are used in the production of other dutiable goods, such as alcohol.[160] Infant formula and medicines are also excluded from the list of HPL products. Further, 100% fruit and vegetable juices and unsweetened milk are excluded from the HPL. Among other exemptions, 100% fruit and vegetable juices and milk and milk-based drinks were not subject to the Danish Soda Tax.[161] Similarly, because "added sugar" for

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[156] Art 2(I)(G) *de la Ley del Impuesto Especial Sobre Producción Servicios;* Philadelphia, Pennsylvania, Municipal Code § 19-4103(2)-(3) & 19-4104(2). All invoices and bills for the acquisition of PBT beverages need to separately indicate the total volume of soft drinks that can be made from concentrates or syrups.

[157] Art 8(I)(f).

[158] Philadelphia, Pennsylvania, Municipal Code § 19-4101(3)(c)(6)..

[159] Backholer et al (2016) *PHN* 3058-3059.

[160] SARS "FAQs for Sugary Beverages Levy" *SARS*.

[161] *Bekendtgørelse nr. 419 af 07.05.2012 af lov om afgift af mineralvand m.v*. § 1; Skat.dk "E.A.3.4.3 Mineralvand og læskedrikkoncentrater omfattet af reglerne" (15-07-2013) *Skat.dk* <https://www.skat.dk/skat.aspx?oId=1977171&chk=208670> (accessed 11-07-2018) ["E.A.3.4.3

purposes of the SDIL excludes intrinsic sugars from fruits, vegetables and milk, 100% fruit and vegetable juices and unsweetened milk is exempt from this tax.[162] Soft drinks used for medicinal purposes are also excluded from the SDIL.[163] However, the exemptions for milk drinks for purposes of the SDIL are broader than that of the HPL. Milk-based beverages are exempt in the UK, where these contain more than 75% milk in the prepared beverage, and milk substitute beverages are exempt where they contain more than 120 milligrams of calcium per 100 millilitres.[164]

The exemptions for milk and fruit and vegetable beverages for purposes of the PBT are broader than that for both the HPL and the SDIL: drinks containing more than 50% milk or fresh fruit and vegetables are excluded from the application of the PBT.[165] These exemptions in terms of the PHPT are even broader than those available in terms of the SDIL and the PBT. For syrups and concentrates for making SSBs in terms of the PHPT, an exemption is applicable where these products contain more than 25% fruit or vegetable content.[166] Further, for ready-to-drink SSBs, an exemption is available where these contain either more than 25% fruit or vegetable content, or more than 50% milk solids.[167] The Portion Cap Rule in NYC would have also excluded beverages containing more than 50% milk or a soy-based milk substitute.[168] As a result, drinks such as milkshakes could be excluded from this rule where the relevant Food Service Establishments ("FSEs") could prove that these drinks contained more than 50% milk or milk substitute, so excessive sugar

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Mineral water and soft drinks concentrates covered by the rules"]. Flavoured soya drinks, flavoured ice for at-home freezing and private consumption, fruit wines and ciders with an alcohol content of less than 1,2% and unsweetened, unflavoured and non-carbonated mineral waters were also excluded from the Danish Soda Tax.

[162] Ss29(2)-(3) of the UK Finance Act 2017 c.10. "Added sugar" is described as "calorific mono-saccharides or di-saccharides" and substances "containing calorific mono-saccharides or di-saccharides."

[163] S30(1)(d) of the UK Finance Act 2017 c.10; Reg 10 of the Soft Drinks Industry Levy Regulations 2018 No. 41. For example, infant formula, medical foods, baby foods and specially-formulated weight-loss foods are exempt soft drinks.

[164] Ss30(1)(a)-(b) and (2)-(3) of the UK Finance Act 2017 c.10; Reg 8(1) of the Soft Drinks Industry Levy Regulations 2018 No. 41.

[165] Philadelphia, Pennsylvania, Municipal Code § 19-4101(3)(c).

[166] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(ab).

[167] Biro (2015) *Food Policy* 8; *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a) & 1(20). These products were excluded since 2012. Milk solids include yoghurt, butter, curd, milk powder, cream, cheese and kefir.

[168] NYC Health Code § 81.53(a)(1)-(2). There was a presumption that sugary drinks contain less than 50% milk or milk substitute, unless the relevant FSE proves otherwise. Milk substitutes only included soy-based products, which were intended to be milk substitutes by its manufacturers.

consumption from these drinks would not necessarily have decreased.[169] For example, Dunkin' Donuts could still offer large "Oreo Vanilla Bean Coolattas," which contain around 174 grams of sugar (696 calories).[170] Further, the Portion Cap Rule would have only applied to SSBs to which the manufacturer or FSE had added sugar. 100% fruit juices and beverages which were sweetened by the final consumer were therefore excluded.[171] Similarly, unsweetened non-alcoholic beverages to which the consumer can add sugar, or request that the seller adds sugar, at the point of purchase are excluded from the application of the PBT.[172] Further, baby formula and medical foods are also excluded from the PBT.[173]

The SSBPT does not apply to beverages "in which milk is the primary ingredient." Beverages "in which milk is the primary ingredient" are described as beverages in which milk constitutes a "greater volume of the product than any other."[174] In addition to these milk beverages, alcoholic beverages, beverages for medical purposes, beverages used as meal replacements or for weight loss, infant formula and 100% fruit and vegetable juices are excluded from the SSBPT.[175] Further, "natural or common sweeteners" are excluded from the description of "added caloric sweetener" for purposes of the SSBPT.[176] The Flavoured Drinks Tax in Mexico is not payable on patented medicines, milk in any presentation, and on beverages sold at restaurants and other places where food and beverage services are provided.[177] Further, because this tax is only payable on beverages where added sugars or nutritive sweeteners are dissolved in water, 100% fruit and vegetable juices and calorie-free ASBs are also excluded.[178]

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[169] NYC Health Code§ 81.53(a)(1)(D). This would not be in line with the health objective, because it would not reduce sugar consumption, and might even increase energy intake.
[170] Neistat "Soda Ban Explained" *The New York Times*.
[171] NYC Health Code § 81.53(a)(1)(B); Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube*. 2:05 – 2:56. For example, because customers add the sugar to coffees and teas, there would be no limit on the serving sizes of these drinks; McDonalds and Dunkin' Donuts could still sell such drinks in medium- and large-sized containers.
[172] Philadelphia, Pennsylvania, Municipal Code § 19-4101(3)(c).
[173] § 19-4101(3)(c).
[174] Berkeley, California, Municipal Code § 7.72.030(A), (J) & (O)(2). For purposes of the milk drink exclusion, milk includes the liquid form of natural milk from any animal, as well as plant-based substitutes for milk, such as almond milk or soy milk.
[175] § 7.72.030(A), (J) & (O)(2).
[176] § 7.72.020(B)-(C) & 7.72.030(K). These include honey, agave nectar, xylem sap from maple trees, brown sugar and granulated white sugar
[177] Arts 8(I)(f) & 13(VII) *de la Ley del Impuesto Especial Sobre Producción Servicios.*
[178] Arts 2(I)(G), 3(XVIII) & 3(XX).

In addition to 100% fruit and vegetable juices, milk-based beverages, milk substitute beverages and soft drinks used for medicinal purposes, alcohol substitute beverages are also exempt from the SDIL.[179] Alcohol substitute beverages are soft drinks which are "similar to a particular kind of alcoholic beverage," and are packaged and marketed as direct replacements "for the particular kind of alcoholic beverage to which it is similar."[180] The marketing of alcohol substitute beverages may not be directed at children under the age of 18, and one of the further conditions must be met for the exemption to apply: the beverage is manufactured from an alcoholic beverage through de-alcoholisation; the beverage is manufactured through mixing with fruit juice, beer, cider, wine or made-wine; or the beverage is manufactured through a distillation or fermentation process whereby alcohol is produced, but the alcoholic strength does not exceed 1,2%.[181]

4 5 Taxes targeting a broader range of food products and other nutrients

4 5 1 Junk Food Tax in Mexico

As discussed above, the introduction of the Flavoured Drinks Tax took place alongside the introduction of the Junk Food Tax in Mexico in 2013.[182] This Junk Food Tax applies to certain: snacks; confectionery products; chocolate and other products derived from cocoa; puddings; fruit and vegetable sweets; peanut and hazelnut creams; *dulches de leche;* cereal-based food products; and ice cream, ice snow and ice popsicles.[183] "Snacks" are described as processed foods made from flours, grains and cereals, and include processed fruits and seeds.[184] Further, confectionery products include marzipan, gelatine, marshmallow and nougat, and fruit and vegetable sweets include marmalades and crystallised fruits and vegetables. Chocolate and products derived from cocoa include any presentation of these food and drinks products containing a homogeneous mixture of any amount of: cocoa paste; cocoa butter; or cocoa and sugar or other sweeteners.[185]

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[179] S30(1)(c) of the UK Finance Act 2017 c.10.
[180] Ss30(4)(a) and 30(5) of the UK Finance Act 2017 c.10; Reg 9(2) of the Soft Drinks Industry Levy Regulations 2018 No. 41; "Alcoholic beverage" is defined as a beverage with an alcoholic strength over 1,2%.
[181] Regs 9(2)-(5) of the Soft Drinks Industry Levy Regulations 2018 No. 41.
[182] Art 2(I)(G) & (J) *de la Ley del Impuesto Especial Sobre Producción Servicios.*
[183] Arts 1(1) & 2(I)(J)(1)-(9), 3(XVIII).
[184] Art 3(XXVI).
[185] Arts 3(XXVII)-(XXVIII) & 3(XXXII).

There are two conditions for the Junk Food Tax to apply to a food product: it needs to be classified in terms of the list of the relevant products; and it needs to have an energy density exceeding 275 kilocalories per 100 grams. The Junk Food Tax is distinct from the Flavoured Drinks Tax, as most sugary drinks have a lower energy density than 275 kilocalories per 100 grams. Once a food product is classified in terms of this list, its energy density is determined from the nutritional information provided on its label.[186] If the label does not provide for the caloric density as a proportion per 100 grams, then the total number of kilocalories in the product is multiplied by 100, and divided by the total weight of the product in grams.[187] If a food product does not apply a label, then it is assumed that it contains an excess of 275 kilocalories per 100 grams, unless it can be proven otherwise.[188]

Because certain food products are considered to be an important component in the general diet of the Mexican population, certain basic foods are excluded from the operation of the Junk Food Tax. These include: wheat and corn tortilla; non-sweet breads; sugar-free crackers with a maximum sodium content of 1200 milligrams per 100 grams; and cereal-based foods for young children and infants. Further, foods prepared with a cereal base are not considered to be food preparations that require an additional process to be eaten directly. Tax authorities acknowledged that basic foodstuffs should not be included under the Junk Food Tax, because this would be regressive.[189] Unlike the Flavoured Drinks Tax, there is no provision for earmarking the revenues collected from this tax, nor have any commitments been made for this revenue be used for health promotion initiatives.[190]

4 5 2 Saturated Fat Tax in Denmark

As mentioned above, saturated fat was identified as a large contributor to certain health issues and deaths attributable to dietary risk factors in Denmark in 2009.[191] According to self-reported data in 2005, the average saturated fat consumption in Denmark represented around 14,5% of total energy intake.[192]

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[186] Art 2(I)(J).
[187] Art 3(XXV).
[188] Art 2(I)(J).
[189] Arts 2(I)(J) *de la Ley del Impuesto Especial Sobre Producción Servicios.*
[190] WCRF *Use economic tools* 6.
[191] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 395. Discussed above under heading "3 3 2 1 Saturated Fat Tax and other taxes on sugary products in Denmark" in Chapter 3 of this thesis.
[192] 151.

Further studies indicated that: Danish people consumed an average of 35 grams of saturated fat per day during the period 2003 to 2008; and that saturated fat comprised around 15 to 16% of Danish daily energy intake, which was above the 10% recommended maximum intake.[193] Animal products and vegetable fats were identified as the primary sources of saturated fat intake. These products include milk, butter, margarine, vegetable oils, cheeses and meats. In order to reduce the consumption of saturated fat, it would be optimal to for the tax to target these primary sources.[194] However, because of the varying saturated fat contents in different cuts of meat and the associated administrative difficulties in distinguishing between these, the Prevention Commission provided that meats should be excluded from the tax base.[195]

The Saturated Fat Tax was introduced in March 2011, and came into effect in October 2011.[196] This tax was imposed at a rate of DKK 16 per kilogram of saturated fat in the following foods ("saturated fat foods"), where the saturated fat content exceeded 2,3 grams per 100 grams: certain meats; certain dairy products; certain animal fat products; certain food oils and fats; certain margarines; certain lubricating mixtures; and other food products which could be considered to be a substitute or imitation of these foods.[197] Unlike the thresholds used for taxes targeting sugary products, this 2,3 grams per 100 grams saturated fat threshold was not intended to incentivise product reformulation, but to: encourage consumers to consume less saturated fat; and ensure that milk would be excluded, because most milk contains less than 2,3% saturated fat, and was considered to be a healthy component of

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[193] A Pedersen, S Fagt, M Groth, T Christensen, A Biltoft-Jensen, J Matthiessen, N Andersen, K Korup, H Hartkopp, K Ygil, H Hinsch, E Saxholt, E Trolle *Danskernes Kostvaner 2003-2008 Hovedresultater* (2010) [Diet of the Danes 2003-2008] 8; W Becker, N Lyhne, A Pedersen, A Aro, M Fogelholm, I Þhórsdottir, J Alexander, S Anderssen, H Meltzer & J Pedersen "Nordic Nutrition Recommendations 20004- Integrating nutrition and physical activity" (2004) 48 *Scandanavian Journal of Nutrition* 178 180; DK Skatteministere *Lovbemærkninger* 19. However, it was acknowledged that this might be underestimated, because it did not take into consideration the saturated fat used in food preparation.

[194] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 143.

[195] 144.

[196] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 26.

[197] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 1 and Annex 1; DK Skatteministere *Lovbemærkninger* 20. This consideration of whether the other food products could be considered to be a substitute or imitation of these foods was based on an overall assessment of the food product's nature and use, and the manner in which it was marketed. Annex 1 provides standard saturated fat contents and rates for different types of meats. Although the rate of DKK 16/kg was lower than that provided in the Prevention Commission's Recommendations, it was estimated that the inclusion of meat in the tax base would raise the expected revenue to around DKK 1,4b.

children's diets. Further, the nature of most of these saturated fat foods is such that reformulation would be impractical and likely impossible. While it is possible to reformulate certain dairy products, meat, for example, cannot be reformulated to contain less fat.

In theory, a tax formulated in this way might have the strongest deterrent effect on saturated fat consumption, because: the prices of these foods would increase relative to their saturated fat content; and in the case of meats, there would be incentive for consumers to replace fattier types and cuts of meats with relatively less fatty options. However, as the Prevention Commission cautioned, it is difficult to distinguish between the varying contents of saturated fat in different meats and cuts of meat.[198] Further, a large portion of the meats sold in retail stores was supplied as whole animal carcasses before being processed into smaller cuts. In order to minimise administrative difficulties in calculating the saturated fat content in meats, the Saturated Fat Tax provided for standardised saturated fat contents for different meats.[199] This has been criticised, because the larger tax burden on fattier cuts of meat relative to leaner cuts of the same meat was eliminated. This aspect of formulation was not in line with the objective to reduce saturated fat consumption; it did not provide incentive for consumers to purchase cuts of meat with lower saturated fat contents in such cases, because they did not become relatively cheaper than the fattier cuts of meat.[200]

The tax period was one month, and the tax base was the weight of saturated fat in these foods, except for the standard saturated fat contents for meats.[201] For Danish manufacturers, the tax was calculated according to the total weight of saturated fat foods produced during the tax period, and for commercial importers, the tax was calculated according to the total weight of taxable foods that were received or imported during the tax period.[202] It could be argued that the health impact would be

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[198] DK Forebyggelseskommissionen *Vi kan leve længere og sundere* 144.

[199] Jensen et al (2015) *PHN* 3086.

[200] Bodker et al (2015) *Health Policy* 740. Kindly refer to Annex H for the standard saturated fat content for meats, and to Annex I for the other specific food products that were subject to the Saturated Fat Tax.

[201] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 6 & 14.

[202] § 4-5, 13 & 13. For Danish manufacturers, the tax was calculated against the weight of taxable foods produced during the tax period for registered companies that exported or produced saturated fat foods that were unfit for human consumption. Further, the tax for Danish producers that manufactured other food products from the taxable foods exclusively for wholesale, was calculated according to the total weight of saturated fat foods used to produce their food products, including waste, shrinkage, etc. A reimbursement was available for local commercial

emphasized and substitution effects minimised because the Saturated Fat Tax targeted saturated fat itself. However, even with the standard saturated fat contents for meats, this tax imposed a heavy administrative burden on taxpayers, who were required to calculate and documents the content of saturated fat in the taxable foods. For saturated fat foods other than meat, the calculation could be based on the nutrition declaration, publicly available food information or a technical analysis on the food. If the taxpayer failed to document the weight of saturated fat in the taxable foods, then the tax was paid on the weight of the total fat content in the final food product. If it was not possible to calculate the weight of the total fat, then the tax was calculated according to the total weight of the final food product. The customs and tax administration had the discretion to adjust the taxable amount based on fat content or total weight, if it was considered that the amount was less than it should have been, had it been calculated correctly. [203] These provisions could be compared to the treatment of concentrates in the HPL in South Africa: where the targeted products do not comply with the relevant labelling or documentary requirements, much higher contents of the targeted nutrients could be assumed as a form of punitive measure.

Similarly to the argument highlighted by Lloyd and MacLaren that taxes targeting sugar itself would present administrative complications in the case of imports, the calculation of tax liability for imported saturated fat foods was even more complicated than for the calculation for domestically-produced saturated fat foods.[204] Take, for example, potato crisps fried in vegetable oil. Local manufacturers of potato crisps would have bought the vegetable oil at a higher price as a result of the tax, and passed through some of these increased costs to consumers of the final product. In this way, the health objective is emphasized, because a broad range of saturated fat

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manufacturers who manufactured saturated fat foods for export, or foods that were unfit for human consumption; these manufacturers were not required to pay tax on the portion of production that was exported or unfit for human consumption. For commercial importers and registered companies that received or imported saturated fat food exclusively for trade with other registered companies, the tax was calculated according to the total weight of taxable foods that were received or imported during the tax period. Further, distance sellers calculated the tax according to the volume of taxable food sold during the tax period. However, for Danish wholesalers, the tax was calculated according to the total weight of saturated fat foods used to produce their food products, including waste and shrinkage, etc.

[203] § 6. For example, in the case where whole animals are not delivered, taxpayers have the election to either: deduct 27,5% for pigs, and 25% for other animals; or calculate the base according to cuts of meat delivered, based on publicly available food information.

[204] Lloyd & MacLaren (2019) *Australian Economic Review* 24.

in a broad range of products is targeted, and not just the specified saturated fat foods. However, where potato crisps were imported into Denmark, the manufacturer outside of Denmark did not necessarily pay the increased prices for the vegetable oil used to fry the potato crisps, so the price of this product would not reflect the same increase as the domestically-manufactured product. In order to overcome this hurdle, a cover charge was imposed on these other foods received, imported or sold by distance selling into Denmark.[205] Unlike the treatment of imported saturated fat foods, this cover charge was paid according to the saturated fat foods used to make these other foods.[206]

Similarly to the provisions for saturated fat foods other than meat: taxpayers for the cover charge were required to calculate, document and provide a declaration on the weight of saturated fat in the taxable foods used to produce these other food products.[207] These calculations were based on the standard rates for meat and other publicly available food information, and higher tax liability was imposed where taxpayers did not provide the relevant declaration.[208] While the approach for domestically-manufactured products more accurately reflected the price increase according to their saturated fat contents, the approach for imported equivalents was inconsistent. For example, the amount of tax payable on imported potato crisps could be calculated according to the total volume of vegetable oil used to fry them, which would be a much larger liability for these products, compared to similar domestically-manufactured products.

4 5 3 Public Health Product Tax in Hungary

PHPT is levied on certain pre-packaged food products that contain an excess of specified amounts of salt, sugar, or caffeine.[209] There is also a PHPT category for

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[205] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 9. Unlike the tax on the saturated fat foods, this charge on other foods produced with saturated fat foods was also payable by non-commercial recipients of these other foods.

[206] § 3, 8 & 15-16. The recipient of taxable foods was liable, regardless of whether the goods were received from another EU country or a country outside of the EU, or from areas within the EU that are not part of the EU tax area.

[207] § 6.

[208] § 12. Similarly to the provisions for saturated fat foods other than meat, where the taxpayer did not provide the relevant declaration, the tax was calculated according to: the total fat content in the final food product; the total weight of the final product, where such information was not available; or an adjusted determination by the customs and tax administration, if it was believed that the taxable amount should have been more than the calculations based on fat or total weight.

[209] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(4). Pre-packaged food and drink products have the following characteristics: they are not packaged in the presence of the

certain alcoholic beverages, which targets alcohol, but this category will not be further discussed in this thesis.[210] Of the food excise taxes considered in this thesis, PHPT has the broadest scope of taxable products. When PHPT was implemented in September 2011, these products included certain pre-packaged: SSBs; confectionery products; energy drinks; salty snacks; and powdered soups and salty condiments.[211] After January 2012, the tax was extended to include sugar-sweetened cocoa powders, syrups, fruit jams, flavoured beers and alcoholic refreshments.[212] The tax base is the total volume or mass of the relevant products, expressed as litres or kilograms. For each of these categories of taxable products, there is a different flat tax rate, and different thresholds for the content of the targeted nutrients and ingredients.[213] Therefore, PHPT is a nutrient-based tax that applies flat rates for the targeted products above a certain tax-free threshold content of the relevant nutrients and ingredients.

As discussed above, the PHPT has five categories targeting sugar, including SSBs.[214] Although flavoured beer and alcoholic refreshments contain alcohol, these categories are taxed according to their sugar content. This category is distinct from both: the category specifically targeting alcohol content; and the SSB category, because it applies to these beverages that contain both alcohol and added sugar. The category flavoured beer covers drinks similar to soft drinks, but that: contain beer; have a sugar content exceeding 5 grams per 100 millilitres; and have an alcohol content of less than 5%.[215] The same characteristics of the flavoured beer category apply to alcoholic refreshments, but instead of beer, these drinks contain spirits or liqueurs such as whisky, gin, vodka, spirits derived from distilled grape wine, rum and other spirits derived from cane sugar.[216] These categories target both

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consumer; they contain a predetermined amount of product, in units expressed in terms of mass or volume; and this predetermined amount cannot be varied without modifying or breaking the packaging.

[210] § 2(i).

[211] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 12(1); WHO Regional Office for Europe *Assessment of the Impact* 16.

[212] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a)-(i).

[213] Torma "Hungary- Corporate Taxation- Country Analyses- 14. Miscellaneous Indirect Taxes" *IBFD Tax Research Platform*.

[214] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a).

[215] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(10) & 2(f); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC heading 2203. For PHPT purposes, "beer" refers to malt beer.

[216] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(g); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC heading 2208.

sugar and alcohol content, and have been included under the PHPT since 2012. The tax rate for these drinks was HUF 20 per litre from 2012 to 2018, and increased to HUF 25 per litre in 2019.[217] The category for fruit jams includes: fruit jams; fruit extracts; marmalades; fruit jellies; fruit or nut pastes or purees.[218] This category was included in 2012, and covers fruit jams with a sugar content exceeding 35 grams per 100 grams.[219] From 2012 to 2018, the rate was HUF 500 per kilogram, and increased to HUF 600 per kilogram in 2019.[220] Unlike the SSB category, the tax-free sugar content threshold is stricter for these beverages, and the rates are higher.

The final category targeting added sugar in confectionery products includes: products without cocoa ("sugar-sweetened confectionery"); products containing cocoa, where cocoa comprises less than 40% of the product ("sugar-sweetened cocoa confectionery"); and products containing more than 40% cocoa ("sugar-sweetened cocoa powder").[221] Products containing a minimum of 20% honey, and less than 40% sugar are excluded from this category.[222] Sugar-sweetened confectionery products include the following, where these products contain an excess of 25 grams of sugar per 100 grams of product: white chocolate; liquorice extract; chewing gum; breads; cakes; pastries; biscuits; wafers; waffles; rice paper; cracker bread; ginger bread; matzos; ice cream; and edible ice.[223] Sugar-sweetened cocoa confectionery include the following products, where these products have a sugar content exceeding 40 grams per 100 grams of product, contain cocoa, and comprise less than 50% milk: sugar-sweetened cocoa powder; chocolate slabs; filled chocolate bars; chocolate spreads; and preparations for making beverages.[224] The rate for sugar-sweetened confectionery was HUF 100 per kilogram in 2011, which

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[217] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(f); Ss136 and 255 of 2018. évi XLI. Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról.

[218] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(h); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC heading 2007.

[219] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(h).

[220] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(g); Ss136 and 255 of 2018. évi XLI. Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról.

[221] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(c).

[222] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(ca); Anonymous "TARIC Consultation" *European Commission- Taxation and Customs Union*.

[223] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(ca); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC headings 1704, 1905 and 2105.

[224] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(cb); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC headings 1806.

increased to HUF 130 per kilogram in 2012 and to HUF 160 per kilogram in 2019. Sugar-sweetened cocoa powders were only included under the scope of PHPT from 2012. From 2012 to 2018, the rate for these products was HUF 70 per kilogram, which increased to HUF 85 per kilogram in 2019.[225]

The PHPT category for energy drinks targets caffeine. Energy drinks are defined as soft drinks as described above,[226] which contain methyl xanthine.[227] While these drinks contain methyl xanthine, they may also contain taurine.[228] This category is thus subdivided into: energy drinks containing taurine ("taurine energy drinks"); and energy drinks not containing taurine ("methyl xanthine energy drinks"). Where energy drinks have a methyl xanthine content exceeding 1 milligram per 100 millilitres, then any taurine content will classify them as taurine energy drinks. Where the methyl xanthine content in these drinks is less than 1 milligram per 100 millilitres, then their taurine content needs to exceed 100 milligrams per 100 millilitres in order to be classified as taurine energy drinks.[229] The threshold content of methyl xanthine for methyl xanthine energy drinks is 15 milligrams per 100 millilitres.[230] From 2011 to 2018, the rate for taurine energy drinks was HUF 250 per litre, which increased to HUF 300 per litre in 2019.[231] Methyl xanthine energy drinks were only included under the scope of PHPT from 2013. From 2013 to 2018, the rate for methyl xanthine energy drinks was HUF 40 per litre, which increased to HUF 50 per litre in 2019.[232]

PHPT has two categories targeting salt: salty snacks; and powdered soups and salty condiments. The salty snacks category includes certain ready-to-eat products that: contain grains, potatoes or seed oils; are processed by curing, roasting or

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[225] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(c); 2018. évi XLI. *Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* § 136 & 255.

[226] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(b); Anonymous "TARIC Consultation" *European Commission- Taxation and Customs Union*.

[227] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(12) & 2(b). "Methyl xanthine" refers to caffeine, theobromine or theophylline.

[228] § 1(9). "Taurine" is defined as 2-aminoethane sulfonic acid, which is the chemical compound H2N-CH2-CH2-SO2-OH.

[229] § 2(ba).

[230] § 2(bb).

[231] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(ba); 2018. évi XLI. *Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* § 136 & 255.

[232] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(bb); 2018. évi XLI. *Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* § 136 & 255.

extruding; and have a salt content exceeding 1 gram per 100 grams of product.[233] Salty snacks include: thinly sliced fried or baked potatoes, regardless of whether or not they are flavoured; pre-packaged fruit and nuts, including pineapples, citrus fruits, pears, apricots, peaches, nectarines, strawberries, palm hearts, other tropical fruits, peanut butter and roasted peanuts; and breads, cakes, pastries, biscuits, wafers, waffles, rice paper, cracker bread, ginger bread and matzos.[234] The PHPT category "powdered soups and salty condiments" includes the following, where these products have a salt content exceeding 5 grams per 100 grams: sauces; preparations for sauces; condiments; seasonings; mango chutney; aromatic bitters; soya sauce; soups; broths; and preparations for soups and broths.[235] The rate for these two categories targeting salt was originally HUF 200 per kilogram, and increased to HUF 250 per kilogram in January 2012.[236] In 2019, the tax rate for these categories increased to HUF 300 per kilogram.[237] Since January 2012, breads and bakery products with a salt content of less than 2 grams per 100 grams of product were excluded from the PHPT.[238]

4 6 Conclusion

Nutrient-based taxes are more effective for pursuing health objectives than taxes that target a category of unhealthy foods or beverages with no reference to their nutritional content.[239] General taxes on goods and services usually apply *ad valorem* rates and do not differentiate between the nutritional content of foods and beverages, so the potential to pursue health objective with these taxes is limited.[240] Although specific tax rates are more complicated and difficult to implement, *ad*

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[233] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 1(3) & 2(d); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC heading 2501. The PHPT Act provides that "salt" is sodium chloride: including denatured salt and table salt; and regardless of whether or not it is in an aqueous solution.

[234] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(d); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC headings 1905, 2005 20 20 & 2008.

[235] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(e); European Commission Taxation and Customs Union "TARIC Consultation" *European Commission*. TARIC headings 2103-2104. Ketchup, mustard, peanut butter and vegetable fats are excluded from this category, provided that they do not contain an excess of 15g of salt per 100g.

[236] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(d)-(e).

[237] 2018. évi XLI. *Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* § 136 & 255.

[238] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(d); Biro (2015) *Food Policy* 8.

[239] WCRF *Building momentum* 11.

[240] Chriqui et al *State Sales Taxes on Regular Soda* 2.

valorem rates are not recommended for food excise taxes.[241] Likewise, without the use of thresholds, flat rate levies are not the most effective formulation option for health promotion objectives.[242] SSB taxes are often criticised for not targeting a broader range of sugar-sweetened products.[243] However, it may not be practical or even possible to introduce a tax that covers all possible substitutes. The administrative complications that could arise from a tax that targets all dietary sources of a particular nutrient are demonstrated in the case of the Saturated Fat Tax in Denmark. While a number of jurisdictions have targeted the sugar content in a broader range of food products, these other dietary sources of sugar may contain other beneficial nutrients apart from sugar, which are more satiating and increase "nutritionally adequate" energy consumption.[244]

With the exception of the PBT, the taxes discussed under heading "4 Taxes targeting sugar-sweetened beverages" are SSB taxes, as described in heading "2 1 Overview of comparative jurisdictions" as "nutrient-based food excise taxes on SSBs that are levied with some reference to their sugar content." SSB taxes are more effective for health objectives than soft drinks taxes through the reprising channels.[245] Because the PBT treats SSBs and ASBs similarly, there is limited incentive for consumers to substitute less sugary beverages and for manufacturers to reformulate these soft drinks to contain less sugar in line with health promotion objectives. However, because the impact of such tax on consumer and manufacturer behaviour is probably smaller than that of SSB taxes, its revenue streams are more stable. The main differences between the SSB taxes discussed are the scope of products targeted by the tax, the type of specific tax rates applied, the extent to which the tax increases the prices, and the use of tax-free thresholds according to sugar content.

Most SSB taxes have a tax-free threshold sugar content, to encourage consumption of SSBs below this threshold, and to encourage manufacturers to reformulate their SSBs to contain less sugar. For example, the PHPT in Hungary is

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[241] Backholer et al (2016) *Public Health Nutr* 3058.
[242] WCRF *Building momentum* 11; Backholer et al (2016) *Public Health Nutr* 3059. This is because it requires additional resources to analyse the exact sugar content in each SSB.
[243] RSA National Treasury & SARS *Final Response Document* 6. Discussed above under heading "1 1 3 2 Criticisms of taxes on sugar-sweetened beverages" in Chapter 1 of this thesis.
[244] RSA National Treasury & SARS *Final Response Document* 6.
[245] WCRF *Building momentum* 11.

only charged on SSBs that contain more than 8 grams of sugar per 100 millilitres.[246] Although not a "tax-free" threshold, after the Danish Soda Tax was changed in line with health objectives in 2010, differentiated rates were applied for SSBs that contained more and less than 0,5 grams of sugar per 100 millilitres respectively.[247] Similarly to the 5 grams per 100 millilitres threshold in terms of the SDIL in the UK, the HPL applies a tax-free threshold of 4 grams per 100 millilitres.[248] However, the HPL is unique in that HPL products above this threshold are taxed per gram of sugar above 4 grams per 100 millilitres, while these other SSB taxes apply a flat rate.[249] Further, the SDIL is unique in that it applies a flat levy to two tiers of SSBs according to their sugar content: £0,18 per litre for SSBs that contain between 5 and 8 grams of sugar per 100 millilitres; and £0,24 per litre for SSBs that contain more than 8 grams of sugar per 100 millilitres.[250] Depending on the tax administrative capacity and the channel through which the tax is intended to improve health objectives: specific tax rates that target the total content of the targeted nutrient are probably the most effective option for discouraging consumption through increased prices; and specific tax rates that apply differentiated thresholds or tiers are likely to be more conducive to product reformulation.[251]

The use of either of these specific tax rates is complicated by the lack of mandatory labelling regulations on the provision of nutritional information. As discussed above, such regulations are arguably an indispensible foundation for most interventions aimed at improving the consumer food environment, and particularly for levying nutrient-based taxes.[252] While all of the other jurisdictions discussed have such regulations in place, South Africa does not. As a consequence, legislators have resorted to applying punitive higher rates for HPL products that do not supply nutritional information on their labels. Although this is an attempt to combat it, the current formulation of the HPL provides opportunities for manufacturers to engage in tax avoidance. The use of tax-free thresholds is also complicated in the case of concentrates and preparations for making SSBs. The HPL and the SDIL payable on

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[246] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a).
[247] *Bekendtgørelse nr. 419 af 07.05.2012 af lov om afgift af mineralvand m.v.* § 2.
[248] S29(1) of the UK Finance Act 2017 c.10.
[249] Part 7A of Schedule No. 1 of the Customs and Excise Act.
[250] Ss 36(1)-(2) of the UK Finance Act 2017 c.10.
[251] RSA National Treasury *Taxation of Sugar Sweetened Beverages* 18; Backholer et al (2016) *PHN* 3059.
[252] Discussed above under Chapter 2 "Non-Market-Based Interventions" of this thesis.

these products are both calculated according to the sugar content in the final product, as diluted according to the manufacturers' directions. While equal tax treatment of these products might be important for the health objective, the administrative complications involved could be minimised if a similar approach to that of the PHPT in Hungary were used. While ready-to-drinks SSBs containing more than 8 grams of sugar per 100 millilitres are taxed at HUF 15 per litre, concentrates in excess of 8 grams of sugar per 100 millilitres are simply taxed at HUF 240 per litre and the amount of sugar in the prepared beverages is not considered.[253]

Most jurisdictions exclude certain milk drinks, fruit and vegetable juices, alcoholic beverages, medicines and infant formula.[254] Although milk and fruit juices contain natural sugars, unlike SSBs containing added sugars exclusively, these drinks offer some additional nutritional value.[255] These drinks are also more difficult to reformulate than SSBs containing added sugars exclusively, and fruit agriculture contributes to "rural employment and incomes."[256] For these reasons, most jurisdictions exclude 100% milk and fruit and vegetable juices from their SSB taxes.[257] However, there are a number of differences between the scope of milk drinks and fruit and vegetable juices excluded from these taxes. For example, only 100% milk and fruit and vegetable juices are excluded from the HPL, while the SDIL excludes milk-based drinks that contain more than 75% milk, and the Public Health Product Tax ("PHPT") excludes ready-to-drink beverages that contain more than 50% milk or 25% fruit or vegetable content.[258] Because these milk drinks and fruit and vegetable juices are potential substitutes for the targeted SSBs, it is important to consider the own-price and cross-price elasticities of demand for these drinks. Stacey et al (2017) argued that the own-price elasticity of demand for 100% fruit and vegetable juices was negligible in 2017, so the inclusion of these drinks would not

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[253] *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 6(a); 2018. évi XLI. *Törvény az egyes adótörvények és más kapcsolódó törvények módosításáról, valamint a bevándorlási különadóról* § 136 & 255.
[254] Backholer et al (2016) *PHN* 3058-3059.
[255] Singh et al (2015) *PloS ONE* 2.
[256] Stacey et al (2017) 105 *Prev. Med* S29.
[257] RSA National Treasury & SARS *Final Response Document* 6; Stacey et al (2017) 105 *Prev. Med* S29.
[258] Ss30(1)(a)-(b) and 30(2)-(3) of the UK Finance Act 2017 c.10; Reg 8(1) of the Soft Drinks Industry Levy Regulations 2018 No. 41; *2011. évi CIII. Törvény a népegészségügyi termékadóról* § 2(a) & 1(20).

improve the HPL's impact on health unless the food industry actively started to promote these drinks as substitutes for targeted SSBs.[259]

[259] Stacey et al (2017) 105 *Prev. Med* S29.

CHAPTER 5: IMPACT ON OBESITY AND OTHER OBJECTIVES

5 1 Introduction

The relevant aspects of formulation that could influence the effectiveness of the taxes on unhealthy foods and beverages in the selected comparative jurisdictions were considered in Chapter 4. This Chapter discusses the impact that these taxes have had on health and other outcomes in these jurisdictions, and comments on how certain aspects of formulation might have influenced these. It is further considered how other developments and non-market-based interventions in these jurisdictions might influence the effectiveness of the market-based interventions. The relevant legal challenges in the United States of America ("USA") are discussed, because the effectiveness of these interventions is greatly limited where they are repealed. Further criticisms of these interventions are expanded, with reference to the considerations and aspects of formulation discussed in Chapters 3 and 4.

Because the Soft Drinks Industry Levy ("SDIL") and the Philadelphia Beverage Tax ("PBT") in particular have been implemented more recently than the taxes in Denmark, Hungary and Mexico, this discussion focuses on these older taxes. With reference to the limited available evidence, comments are made on the impact of the SDIL and the PBT, but it will be necessary to monitor their effectiveness in the following years. Following the discussion on the comparative jurisdictions, recent research on the effects of the HPL is considered, and comments are made on: whether changes to the HPL's current formulation could result in improved health outcomes; and whether development of certain non-market-based interventions in terms of the "multiple-intervention approach" could complement the HPL's objective.

5 2 Comparative jurisdictions

5 2 1 Legal challenges in the United States of America

5 2 1 1 Portion Cap Rule in New York City

As discussed above, the limited scope of SSBs and Food Service Establishments ("FSEs") targeted by the Portion Cap Rule would have probably limited its

effectiveness in changing consumption and health.[1] Apart from these criticisms however, this rule was particularly unpopular in the SSB industry.[2] The Portion Cap Rule was set to enter into effect in 2013, but in October 2012, the soft drink industry and a number of other businesses and organisations challenged the authority of the NYC Board of Health to implement such a rule. The New York County Supreme Court found that the Portion Cap Rule: was a violation of the separation of powers doctrine on the part of the NYC Board of health; and was arbitrary and capricious.[3] On appeal, the New York Court of Appeals confirmed that the NYC Board of Health exceeded its scope of regulatory authority in adopting this rule.[4] Upon this determination by the New York Court of Appeals however, the question of whether this rule was also arbitrary and capricious was not considered.[5]

In considering whether the NYC Board of Health violated the separation of powers doctrine, both courts applied the test used in *Boreali v Axelrod* ("*Boreali*"),[6] which is used to distinguish between legislative policy-making and administrative rule-making. The test used in *Boreali* involves the consideration of certain "coalescing circumstances" which "paint a portrait of an agency that has improperly assumed" legislative power. One of these circumstances is whether there was an "effort to weight the goal of promoting health against its social cost and to reach a suitable compromise." In *Boreali* it was provided that the Public Health Commission had "constructed a regulatory scheme laden with exceptions based solely upon economic and social concerns," but that achieving "the proper balance among health concerns, cost and privacy interests... is a uniquely legislative function."[7] The Court of Appeals emphasized that policy-making should only be exercised by the people's duly elected legislative branch.[8] Because the Portion Cap Rule involved value judgments

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[1] Discussed above under headings "2 3 1 2 Portion Cap Rule in New York City" in Chapter 2 and "4 4 3 3 Exemptions and exclusions" in Chapter 4 of this thesis.

[2] S Hsu "A Cost-Benefit Analysis of Sugary Drink Regulation in New York City" (2014) 10 *Journal of Food Law & Policy* 73 81; Min (2013) *JLPP* 190. It has been estimated that the Coca-Cola Company in NYC alone would have lost around $240m in profits per year as a result of the Portion Cap Rule. Further, many people in NYC regarded the Portion Cap Rule as paternalistic.

[3] *New York Statewide Coalition of Hispanic Chambers of Commerce v New York City Department of Health and Mental Hygiene* No. 653584/12, 2013 WL 1343607 (N.Y. Sup. Ct. Mar. 11, 2013) at 20.

[4] *New York Statewide Coalition of Hispanic Chambers of Commerce v New York City Department of Health and Mental Hygiene* 970 N.Y.S.2d 200 (App. Div. 2013) 204.

[5] 213.

[6] 517 N.E.2d 1350 (N.Y. 1987).

[7] 3155-1356.

[8] *New York Statewide Coalition of Hispanic Chambers of Commerce v New York City Department of Health and Mental Hygiene* 16 N.E.3d 538 (N.Y. 2014) 546.

on economics and personal autonomy, the Board of Health engaged in policy-making, and the rule was invalidated.[9] Although this rule did not come into effect, it has been argued that the attention it drew to the obesity discussion was a positive outcome.[10]

5 2 1 2 Philadelphia Beverage Tax

Similarly to the Portion Cap Rule and other SSB taxes, the food industry was strongly opposed to the PBT. Between January and June 2017, the American Beverage Association alone spent just under $3 million on marketing campaigns against the tax.[11] Further, during the period July to September 2017, the former mayor of New York, Michael Bloomberg, is reported to have spent around $2,3 million on marketing campaigns in favour of the PBT.[12] This tax was challenged in the Common Pleas Court in 2016, and upheld by the Commonwealth Court of Pennsylvania in 2017 in *Williams v City of Philadelphia* ("*Williams 2017*").[13] On appeal, the Pennsylvania Supreme Court also upheld the tax in *Williams v City of Philadelphia* ("*Williams 2018*").[14] This legal action was brought by a group of retailers, consumers, distributors and trade associations, and there were three main arguments against this tax: that the PBT was pre-empted by SNAP legislation, which provides that taxes may not be levied on food items bought with SNAP benefits;[15] that the PBT violates the Uniformity Clause of the Pennsylvania Constitution, because the tax results in unequal treatment;[16] and that the PBT amounts to double taxation on soft drinks in terms of the Sterling Act of August 5, 1932 ("Sterling Act"),

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[9] 548.
[10] Neistat "NYC Soda Ban explained, sort of (New York Times Op-Doc Video)" *YouTube*. 3:48 – 4:04.
[11] J Trinacria "All Those Philly Soda Tax Ads Cost $5.4 Million This Year" (27-09-2017) *Philadelphia Magazine* <https://www.phillymag.com/news/2017/09/27/soda-tax-lobbyists-spent-millions-tv-ads/> (accessed 15-04-2019).
[12] Trinacria "All Those Philly Soda Tax Ads Cost $5.4 Million This Year" *Philadelphia Magazine*. Further, during the period April-June 2017, Philadelphians for a Fair Future is reported to have spent $153 000 on marketing campaigns in favour of PBT. In 2017, a total of around $5,4m was spent on marketing campaigns by both supporters and opponents of PBT.
[13] 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017).
[14] 188 A.3d 421 (Pa. 2018).
[15] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 587-594.
[16] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 595; PA Const. Art. VIII, § 1 s1 provides that "all taxes shall be uniform, upon the same class of subjects, within the territorial limits of the authority levying the tax and shall be levied and collected under general laws." The Commonwealth Court in Williams 2017 para 595 provided, however, that PBT only applies to one class: distributors of taxed beverages; Williams 2017 para 584. In determining the classes of taxed items, the measure and calculation of the tax are important considerations: PBT was found to be a "specific tax uniformly applied to all members of the class, distributors, and therefore meets the requirements of the uniformity clause."

because these beverages are already subject to the state sales tax in Pennsylvania.[17] Pre-emption of double taxation in terms of the Sterling Act was the only issue considered in *Williams 2018*, and these other two arguments were rejected in the lower courts.

The PBT was not found to be in conflict with the SNAP provision restricting State and local governments from levying taxes on foods purchased with SNAP benefits, because it is levied against non-retail distributions and not retail purchase transactions.[18] The Commonwealth Court in *Williams 2017* referred to the 1975 decision in *Gurley v Rhoden* ("*Gurley*"),[19] where the issue of determining the legal burden of taxation was addressed. It was provided in *Gurley* that, in order to determine the legal incidence, the plain language and legislative intent of the relevant statute needs to be considered. Regardless of the economic burden, the legal burden is the important consideration. In terms of the plain language of the Philadelphia SSB tax, the tax liability is on distributors, defined as "any person who supplies sugar-sweetened beverages to a dealer," and the tax is triggered when a "distribution" is made. Therefore, because the legal burden of this SSB tax is on the distributors, there is no conflict with SNAP legislation.[20] Further, the Commonwealth Court found that the PBT was not in conflict with the Uniformity Clause of the Pennsylvania Constitution, which provides that "all taxes shall be uniform, upon the same class of subjects, within the territorial limits of the authority levying the tax and shall be levied and collected under general laws."[21] However, the Commonwealth Court provided that the PBT only applies to one class, and held that this was a "specific tax uniformly applied to all members of the class, distributors, and therefore meets the requirements of the uniformity clause."[22]

The Sterling Act provides that "first class" cities have the authority to levy taxes, provided that they may not exercise this authority on products or transactions already subject to state taxes. In both *Williams 2017* and *Williams 2018,* the plaintiffs

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[17] *Williams v City of Philadelphia* 188 A.3d 421 (Pa. 2018).
[18] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 587-594.
[19] 421 US 200 205 (1975).
[20] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 587-594. Regardless of whether or not the tax is ultimately passed through to consumers, because the relevant legislation provides that the legal burden is on the distributors, there is no conflict with the SNAP provisions.
[21] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 595; The Constitution of Pennsylvania of 1776 Art. VIII, § 1 s1.
[22] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 584 & 595.

argued that, because these PBT beverages were already subject to the 6% sales tax in Pennsylvania, PBT amounted to double taxation and was therefore in conflict with the Sterling Act. However, both the Commonwealth Court and the Pennsylvania Supreme Court found that there was no double taxation, because the PBT and the Pennsylvania sales tax applied to different subjects: the PBT applies to distributions of these beverages; while the sales tax applies to retail sales of these beverages. As with the rationale that the PBT was not pre-empted by SNAP legislation, the Pennsylvania Supreme Court provided that the main consideration for double taxation is the legal incidence, and not the economic incidence of the tax. It was further provided that any fairness concerns were of a legislative, and not a judicial nature.[23] Following the decision of the Pennsylvania Supreme Court, Mayor Kenney issued the following statement:

> "I am grateful to the Justices of the Pennsylvania Supreme Court for their fair and careful review of this case... Beyond the legal resolution, today's decisive ruling offers renewed hope for tens of thousands of Philadelphia children and families who struggle for better lives in the face of rampant poverty.
>
> "Those families – and Philadelphia as a whole – now have a clear path toward substantive, tangible improvements in their lives. It is a path that will bring the educational gains of free, quality pre-K seats, the benefits to neighborhoods brought by Community Schools, and the quality of life improvements and economic benefits brought by rebuilding parks, recreation centers, playgrounds and libraries. These programs, funded by the beverage tax, will fuel the aspirations and dreams of those who have waited too long for investments in their communities. The City of Philadelphia will now proceed expeditiously with our original plans – delayed in whole or part by nearly two years of litigation — to fully ramp up these programs now that the legal challenge has been resolved."[24]

Mayor Kenney stated that the tax was successfully implemented because it was framed as a revenue-raising tax, which was earmarked for health and education programmes. He believes that transparency was an important aspect of the sustainability of the tax.[25] Lockwood agrees that the association between the tax and the spending programmes is an important factor for sustainability, because the previously proposed taxes were not linked to any specific spending programmes.[26]

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[23] *Williams v City of Philadelphia* 164 A.3d 576 2077 (CD 2016) 2078 (Pa Cmwlth. 2017) 587; *Williams v City of Philadelphia* 188 A.3d 421 (Pa. 2018) 444.
[24] Office of the Mayor "Statement on PA Supreme Court Decision" *City of Philadelphia.*
[25] Cohen "Philadelphia passes soda tax after mayor rewrites playbook" *Reuters.*
[26] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" *Wharton University of Pennsylvania*.

However, Lockwood argues that the PBT is not the best source of funding for this pre-K education, and that income taxes may be a better option.[27]

Further criticisms of the PBT include that: the money spent on lobbying and litigation could be better spent actually funding the relevant programmes; the PBT has caused job losses; and that its revenue-generating capacity is limited because consumers could purchase these beverages for lower prices in neighbouring cities.[28] Soft drinks and SSB taxes in the USA have been criticised because of the inconsistencies between each state. Consumers in states with sugar taxes can avoid the tax by buying these products in a neighbouring state, so it is argued that a nation-wide tax in would be more effective in reducing consumption.[29] In terms of the Sterling Act, "first class" cities and towns are those with more than one million residents.[30] Philadelphia is the only first class city in Pennsylvania, so it is the only city in Pennsylvania with such a tax. If people in Philadelphia simply drive over the Ben Franklin Bridge in order to purchase soda in New Jersey, then consumption would not be reduced and there would be no health benefits. In this way, the PBT could lead to undesirable consequences, such as wasted fuel and time, and increasing pollution from motor vehicles.[31]

5 2 2 Saturated Fat Tax in Denmark

5 2 2 1 Impact on prices

The Saturated Fat Tax was expected to be fully passed through to consumers, and it was estimated that these price increases would reduce consumption of the targeted products by 4%.[32] Jensen et al estimated that the Saturated Fat Tax had a very small or insignificant impact on the prices of certain low-fat and medium-fat

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[27] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" *Wharton University of Pennsylvania*.

[28] Jerrett (2018) *FDLJ* 480-482; D Davies "$5.4 million in ads devoted to Philly soda tax battle this year" (27-09-2019) *WHYY* <https://whyy.org/articles/5-4-million-ads-devoted-philly-soda-tax-battle-year/> (accessed 15-04-2019). For example, $5m would fund pre-kindergarten education for 600 children. Further, in February 2017, Pepsi stated that it would retrench 80-100 employees within the city, due to the financial burden of the tax. According to a bottler from Canada Dry, sales decreased by 45% after the implementation of the tax, and that around 30 employees were retrenched.

[29] Mann (2017) *Environmental Law* 725.

[30] Davies "$5.4 million in ads devoted to Philly soda tax battle this year" *WHYY.*

[31] Knowledge@Wharton "Do 'Sin Taxes' Really Change Consumer Behaviour?" *Wharton University of Pennsylvania*.

[32] DK Skatteministere *Lovbemærkninger* 20.

products, and only high-fat products showed any meaningful price increases.[33] This finding supports the health objective, because the prices of higher-fat products increased more than for lower-fat products. Thiele and Roosen observed that the prices of oils and fats increased significantly.[34] The prices for butter, margarine, cooking oils, olive oils and vegetable oils increased in line with the expectations of the *Ecorys Report*.[35]

The lowest price increase observed was for olive oils, which have a relatively low content of saturated fat. Further, the highest price increase observed was for cooking oils, which have a relatively high content of saturated fat.[36] This effect that the prices increased more for oils and fats that had relatively higher saturated fat contents is in line with the health objective. The *Ecorys Report* further observed that the tax on oils and fats was fully passed through to consumers, and retailers' and manufacturers' profit margins remained the same.[37] An *ex post* analysis done by Jensen and Smed showed mixed results for the tax's effects on prices: supermarkets increased their prices of margarines and blends in line with the tax increase, but under-shifted the tax in the case of oils and butter; and discount stores increased their prices of oils and blends in line with the tax, but increased their profit margins for butter and margarine.[38]

5 2 2 2 Impact on consumption and health

As a result of the increased prices, the demand for most oils and fats either continued to decline, or decreased suddenly.[39] The *Ecorys Report* observed that the demand for vegetable oil remained stable, and increased for olive oil after 2012, while the demand for other categories of oils and fats decreased by between 5,5%

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[33] Jensen et al (2015) *PHN* 3087, 3090 & 3094. These products were minced beef, regular cream and sour cream. These authors estimated the following price increases for "high-fat" products that contained an excess of 12% fat: 16,2% for minced beef; 14,2% for regular cream; and 13,2% for sour cream.

[34] Thiele & Roosen "Obesity, Fat Taxes and Their Effects" in *Regulating and Managing Food Safety* 183-184.

[35] Ecorys *Report* 27 & 34. The price increases for each of these categories of oils and fats were: 13,1% for butter; 12,1% for margarine; 17,7% for cooking oils; 4,3% for olive oils; and 9,3% for vegetable oils. This report does however note that the data used is annualised, which makes it impossible to accurately analyse the effects of this tax on prices during the months before and after its implementation.

[36] Thiele & Roosen "Obesity, Fat Taxes and Their Effects" in *Regulating and Managing Food Safety* 183-184.

[37] Ecorys *Report Annexes* 77.

[38] Jensen & Smed (2013) *Food Policy* 18 & 22.

[39] Thiele & Roosen "Obesity, Fat Taxes and Their Effects" in *Regulating and Managing Food Safety* 183-184.

and 8,2%. The differences in the demand changes between these categories could be because olive oils and vegetable oils have relatively less saturated fat than butter, margarine and cooking oils: because the tax imposed on these products was less than the other categories, their price increases were relatively smaller and they may have become relatively cheaper.[40] The *Ecorys Report* further observed a small increase in the market share for non-premium brands across most products, at the expense of premium brands and unclassified brands.[41] These trends continued after the introduction of the tax, with two exceptions: there was a sharp increase in the market share for non-premium olive oils, and the small share of the market held by premium brands for cooking fats was almost totally eradicated.[42]

Jensen and Smed estimated that the tax-induced price increases resulted to a 10% to 15% reduction in consumption of oils and fats, which corresponded to a 3,66 gram decrease in saturated fat consumption per person per day.[43] However, hoarding effects were observed, and these authors caution that these results should also be interpreted carefully because the data period was relatively short.[44] It was further observed that there was a shift in demand from supermarkets towards discount stores. Such a shift does not support the health objective, because the effects on consumption are reduced.[45] Bodker et al considered the substitution effects between saturated fat foods and other foods, and estimated that there was a total 911 000 kilogram reduction in the consumption of butter, butter blends, margarines, fats, oils, cheese, cream, sour cream, chips, snacks, cookies and biscuits.[46] These authors estimated an average reduction in consumption of 2,16%, which is much smaller than the 10% to 15% reduction estimated by Jensen and Smed. It is explained that these different results may arise from the differences

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[40] Ecorys *Report* 34-35; Ecorys *Report Annexes* 78-79. The changes in demand for each of these categories of oils and fats in 2012 were: 5,5% decrease for butter; 8,2% decrease for margarine; 5,5% decrease for cooking oils; 6,3% increase for olive oil; and 3,2% increase for vegetable oil. However, the demand for olive oil was already increasing before the tax's implementation. Further, the demand for butter and cooking oils continued to decline, and there was an accelerated reduction in the demand for margarine. However, because this study used annualised data, it is acknowledged that the price increases may have had a greater effect on demand.

[41] Ecorys *Report Annexes* 80.

[42] 79-83.

[43] Jensen & Smed (2013) *Food Policy* 24-25.

[44] 24. Hoarding effects were observed where consumers purchased large quantities of the saturated fat foods in the period leading up to the tax's implementation.

[45] Ecorys *Report Annexes* 183-184; Jensen & Smed (2013) *Food Policy* 26.

[46] Bodker et al (2015) *Prev. Med* 201.

between the populations studied.[47] Bodker et al also considered the demand for food products not specifically targeted by the tax, such as chips and biscuits, and estimated that the consumption of these products increased by an average of 1,53%.[48]

Jensen et al estimated that there was a 4% to 6% reduction in consumption of saturated fat from cream and minced beef, but no change in saturated fat consumption from sour cream.[49] These authors argue that such a reduction in saturated fat consumption would have a limited impact on the health objective. Using survey data, Smed et al modelled the effects that the Saturated Fat Tax had on energy intake, and consumption of saturated fat and other nutrients.[50] These authors found that there was an average decrease in consumption of saturated fat of 4%. Further, this study found that there was an average 7,9% increase in vegetable consumption and a 3,7% increase in fibre consumption. The above results are all in line with the general objective of reducing saturated fat consumption. However, this study found that the tax also led to a number of undesirable substitution effects. For example, the consumption of fruit decreased for certain age groups, and the consumption of salt increased for certain age groups.[51]

As a result of the estimated changes in the relevant saturated fat foods and other foods, Bodker et al estimated the following nutritional changes, as a proportion of total energy intake: the consumption of saturated fat decreased from 7,3% to 7%; the consumption of monounsaturated fat decreased from 5,6% to 5,4%; and the consumption of polyunsaturated fat decreased from 2,1% to 2%.[52] Unsaturated fat is regarded as an important nutrient in a healthy diet, so this unintended consequence might mitigate the positive impact on health. Using two different models, it was estimated that these changes in consumption could result in either: a 0,3% decrease

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[47] Jensen & Smed (2013) *Food Policy* 19 & 25; Bodker et al (2015) *Prev. Med* 202.

[48] Bodker et al (2015) *Prev. Med* 202. This average increase in consumption is comprised of the following changes in consumption of these other products: the consumption of chips increased by 11,7%; the consumption of snacks increased by 1,7%; the consumption of cookies decreased by 2,7%; and the consumption of biscuits decreased by 4,6%. The total increase in consumption of these other foods undermines the health objective of the Saturated Fat Tax, although the decreased consumption of cookies and biscuits might have supported it.

[49] Jensen et al (2015) *PHN* 3091.

[50] S Smed, P Scarborough, M Rayner & J Jensen "The effects of the Danish saturated fat tax on food and nutrient intake and modelled health outcomes: an econometric and comparative risk assessment evaluation" (2016) 70 *EJCN* 681 682.

[51] 683. Fruit consumption decreased for women, older women and younger men, and salt consumption increased for all of the age groups, except for younger women.

[52] Bodker et al (2015) *Prev. Med* 202.

in the risk of ischemic heart disease ("IHD"), which corresponds to 50 averted IHD-related deaths per year; or a 0,2% increase in the risk of IHD, which corresponds to 40 more IHD-related deaths per year.[53] As a result of the estimated changes in consumption of saturated fat, sodium, fibre and fruits and vegetables, Smed et al estimated that deaths as a result of IHD would decrease, but there would be an increase in deaths caused by strokes and heart failures.[54] Overall, these authors estimated that this tax had a slightly positive impact on health, with 123 deaths averted per year.[55]

There is no literature on product reformulation as a result of the Saturated Fat Tax. This could be due to the fact that: the fat content in these products cannot be reduced; low fat alternatives of the taxed products existed before the tax was introduced; and for distance sales and wholesalers, the tax was not levied on the saturated fat in the final product, but on the fat used to produce it.[56] From a survey conducted by the Danish Food and Drink Federation, the members of the *Dansk Industri* ("DI") stated that up to 35% of the fat used in production was wasted.[57] For these reasons, industry organisations believe that the tax should rather have been paid on the saturated fat contained in the final product.[58]

It has also been argued that the standard rates for meats did not support the health objective, because certain cuts of the same meat have different fat contents.[59] Further, in order to maintain sales, it was possible for retailers to distribute their increased costs across other products that were not subject to the tax. This behaviour is in conflict with health objectives where healthier foods become relatively more expensive as a result.[60] It is difficult to predict any long-term health effects, as this tax was only implemented for 15 months. The *Ecorys Report* concludes that the Saturated Fat Tax did achieve both of its policy objectives of health promotion and revenue generation, although at the expense of the affected companies.[61] However, based on the findings of Smed et al and Bodker et al, it is arguable that the predicted

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[53] 201.
[54] Smed et al (2016) *EJCN* 686.
[55] 686.
[56] Ecorys *Report* 31-32; DI Fødevarer *Problemstillinger- fedtafgiften (notat)* (2012) [Notes on issues pertaining to the Saturated Fat Tax] 2.
[57] DI Fødevarer *Problemstillinger- fedtafgiften* 1-2.
[58] Ecorys *Report Annexes* 184.
[59] DI Fødevarer Problemstillinger- fedtafgiften 2.
[60] Bodker et al (2015) *Health Policy* 740.
[61] Ecorys *Report* 186; Jensen & Smed (2013) *Food Policy* 18.

consumption changes would have had a marginal impact on public health. Further, because many Danish consumers crossed the national borders to purchase the targeted foods, the predicted health effects may be even less significant.[62]

5 2 2 3 Impact on other policy objectives

The Saturated Fat Tax was repealed with effect from January 2013.[63] The decision to repeal this tax was made without consulting any evidence as to its effectiveness in improving consumption and health.[64] Rather, it was submitted that this tax was repealed due to economic concerns, including increasing administrative costs for companies and threatening Danish jobs. Social welfare was also specifically considered, and the regressive impact of such food taxes on lower socio-economic groups was acknowledged.[65] This tax increased the administrative burden for all the relevant taxpayers: wholesalers and taxpayers who were subject to the cover charge faced the additional burden of supplying the relevant declaration on the saturated fat used in production;[66] retailers also incurred administrative costs in adjusting their IT systems and recalculating tax rates;[67] and even companies that did not produce foods for human consumption were subject to the increased administrative burden of registering in terms of the Saturated Fat Tax in order to apply for the reimbursement.[68] It was estimated that Danish companies paid DKK 500 million for this tax in 2011, and that DKK 50 million (10%) of these costs were administrative costs.[69] The Danish Chamber of Commerce estimated that the total administrative costs to retail and wholesale companies was DKK 200 million, and the Danish Agriculture and Food Council estimated that the annual administrative costs

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[62] Smed et al (2016) *EJCN* 685-686; Bodker et al (2015) *Prev. Med* 201.
[63] *Lov nr. 1395 af 23.12.2012 om ophævelse af fedtafgiftsloven og om ændring af lov om afgift af elektricitet, ligningsloven, personskatteloven med flere love* [Act on the repeal of the Saturated Fat Tax and amending several laws] § 1.
[64] WHO *Using price policies to promote healthier diets* 17; S Vallgarda, L Holm & J Jensen "The Danish tax on saturated fat: why it did not survive" (2015) 69 *EJCN* 223 225.
[65] DK Skatteministern (HK Nielsen) *Forslag til Lov om ophævelse af fedtafgiftsloven og om ændring af lov om afgift af elektricitet, ligningsloven, personskatteloven med flere love, fremsat den 16. november 2012 af skatteministeren* (2012) [Comments on the Proposal for the Act on Repealing the Saturated Fat Tax and amending several laws made by the Minister of Taxation] 1; Vallgarda et al (2015) *EJCN* 225.
[66] Ecorys *Report Annexes* 184.
[67] Snowdon *The Proof of the Pudding* 24.
[68] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 7 & 17; DI Fødevarer *Problemstillinger- fedtafgiften* 2.
[69] DI Fødevarer *Problemstillinger- fedtafgiften* 1.

were DKK 100 million for its members.[70] As a result of these increased costs, many staff members were retrenched in order to offset the administrative burden.[71]

This tax was also blamed for the increase in the inflation rate: in November 2011, it was estimated that this tax caused the inflation rate to increase by 4,7%, while real wages decreased by 0,8%.[72] The Danish Chamber of Commerce and Danish Agriculture and Food Council estimated that this tax resulted in: a 0,16% percentage point increase in the general inflation rate; the food inflation increasing from 3,38% to 4,66%; and decreased consumer spending, which would lead to job losses, predominantly in the retail sector.[73] It has been estimated that 1 300 Danish jobs were lost in 2011 as a result of the increased administrative costs and decreased consumer spending. Further, this tax increased cross-border trade.[74] For these reasons, this tax was very unpopular among Danish consumers.[75] It has been suggested that, in order for health taxes to be sustained, it is important to maintain public and political support for these taxes. Healthcare professionals should be consulted for perspective on how to formulate these taxes effectively around the health objectives. If this is not done, then the purpose of these taxes will be perceived to be revenue collection, and they will become unpopular and vulnerable to lobbying and repeal.[76]

The repeal of the Saturated Fat Tax was part of a range of other tax reforms aimed at improving the Danish economy, including the increase of income tax rates, the repeal of the Soda Tax, and the dismissal of plans to increase the Chocolate and Confectionery Tax and Ice Cream Tax rates.[77] The Soda Tax was also criticised for its economic effects, and its repeal was triggered due to the poor reception of the Saturated Fat Tax.[78] Accordingly, the Soda Tax rates were first reduced from July

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[70] Ecorys *Report Annexes* 183-184
[71] Snowdon *The Proof of the Pudding* 24.
[72] 16.
[73] Ecorys *Report Annexes* 185; Jensen & Smed (2013) *Food Policy* 25. However, Jensen & Smed provide that the increased prices for consumers were partly attributable to the pricing behaviour of discount stores.
[74] Bodker et al (2015) *Health Policy* 740.
[75] Snowdon *The Proof of the Pudding* 18.
[76] Bodker et al (2015) *Health Policy* 742.
[77] Comment 2 of the Proposal to Repeal of Fat Tax Act. It was predicted in 2012 that these legislative changes would effectively reduce the Gini Coefficient by 0,02%.
[78] Skatteministeriet "L82 (Folketingsår 1012-13)" (16-11-2012) *Skatteministeriet* <http://www.skm.dk/love/lovforslag/2012-13/l82>.

2013, and then the tax was totally repealed from January 2014.[79] According to the Danish Ministry of Taxation's Trade Report in 2010, it was estimated that the cross-border trade in soda products had stabilised at around 100 million litres per year.[80] Where it is possible for consumers to purchase taxed products in nearby jurisdictions, the health impact is reduced and the relevant local industries experience reduced sales.[81]

Following the tax changes in 2013 and 2014, the demand for soda products increased by: 7% for regular cola; and 4,9% for low-calorie cola. However, the *Ecorys Report* provides that it is unclear to what extent these demand increases were attributable to the tax decreases, given the volatility of the market for these products.[82] Further, because there were numerous tax changes, it is difficult to determine how the market would have responded without the Soda Tax. It is therefore necessary to interpret any of these observations cautiously. According to a report from June 2018 however, the cross-border trade has decreased for soda, beer and chocolate and confectionary.[83] As a result of this decrease, it is provided that there has been an increase in the turnover of Danish stores, which is beneficial for the Danish businesses themselves, and also creates more jobs.[84] There was a proposal to increase the rates for both the Chocolate Tax and the Ice Cream Tax from January 2018.[85] However, these proposals were revised, and various other

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[79] *Lov nr. 789 af 28.06.2013 om ophævelse af lov om afgift af mineralvand m.v. og om ændring af øl- og vinafgiftsloven og forskellige andre love* [Act on the Repeal of the Soda Tax and amending various other laws] § 1 & 7-8. From July 2013-December 2013, the Soda Tax rates were then reduced to DKK 0,82/l for high-sugar products, and DKK 0,30/l for low-sugar products. Thereafter, from 1 January 2014, the Soda Tax was totally repealed.

[80] Skatteministeriet "Tax changes on beer and wine" (05-05-2010) *Skatteministeriet* <http://www.skm.dk/skattetal/analyser-og-rapporter/notater/2010/maj/afgiftsaendringer-paa-oel-og-vin> (accessed 11-07-2018).

[81] Skatteministeriet "Chapter 4. Sodavand" *Skatteministeriet.* It has been argued that the increased Soda Tax rate in 2001 did not lead to a decrease in consumption, but rather: an increase in border trade; a decrease in Danish sales of soda products; and an increase in illegal trade of imported soda products.

[82] Ecorys *Report* 36.

[83] Skatteministeriet "Borders fall: the Danes pick up fewer beers, soda and candy bags on the other side of the border" (2018) *Skatteministeriet* <http://www.skm.dk/aktuelt/presse/pressemeddelelser/2018/juni/graensehandlen-falder-danskerne-henter-faerre-oel,-sodavand-og-slikposer-paa-den-anden-side-af-graensen> (accessed 11-07-2018).

[84] Skatteministeriet "Borders fall: the Danes pick up fewer beers, soda and candy bags on the other side of the border" *Skatteministeriet*.

[85] *Bekendtgørelse nr. 1163 af 05.09.2016 af lov om afgift af chokolade- og sukkervarer m.m. (chokoladeafgiftsloven)* [Executive Order on the Chocolate Tax Act] § 2, 19 & 22; *Lov nr. 1686 af 26.12.2017 om ændring af chokoladeafgiftsloven, lov om forskellige forbrugsafgifter, kildeskatteloven, lov om afgift af konsum-is, spiritusafgiftsloven og øl- og vinafgiftsloven* [Act

amendments were made to the Chocolate Tax Act, in order to: make these products more affordable for Danish consumers; reduce cross-border trade; and reduce the tax burden on Danish businesses.[86] The rate for Chapter 1 chocolate and confectionery products was not increased in 2018, and the rates for Chapters 2 and 3 products were reduced;[87] waffles were excluded from the Chocolate and Confectionery Tax, and a reimbursement was made available for commercial ice cream manufacturers for chocolate and confectionery products used to manufacture ice cream since April 2019;[88] and the tax on Chapter 2 products is abolished, and peanuts and other nuts are excluded from the Chocolate and Confectionery Tax from January 2020.[89]

5 2 3 Public Health Product Tax in Hungary

5 2 3 1 Impact on prices and product reformulation

It was expected that the PHPT would generate HUF 5 billion in 2011, and HUF 20 billion in each 2012 and 2013. From September 2011 to December 2014, the PHPT generated HUF 61,3 billion: HUF 3,27 billion in 2011; HUF 19,5 billion in 2012; HUF

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amending the Chocolate Tax Act, the Consumer Ice Cream Tax and several other laws] § 4. It was proposed that the rates for: high-sugar ice cream and Chapter 1 products increase to DKK 7,36/l and DKK 27,39/kg respectively; and low-sugar ice cream and Chapter 1 products increase to DKK 5,88/l and DKK 23,30/kg respectively. It was also proposed that the rates for Chapters 2 and 3 products be increased in 2018.

[86] *Lov nr. 924 af 18.09.2012 om ændring af lov om forskellige forbrugsafgifter, brændstofforbrugsafgiftsloven, tonnageskatteloven og forskellige andre love* [Act amending the Act on various consumption taxes and various other laws] § 5. The Ice Cream Tax rates since January 2015 are still applicable: DKK 6,98/l for high-sugar products; and DKK 5,58/l for low-sugar products.

[87] *Lov nr. 1686 af 26.12.2017 om ændring af chokoladeafgiftsloven, lov om forskellige forbrugsafgifter, kildeskatteloven, lov om afgift af konsum-is, spiritusafgiftsloven og øl- og vinafgiftsloven* § 1, 12-20 & 22-23.

[88] *Lov nr. 1728 af 27.12.2018 om ændring af tinglysningsafgiftsloven og forskellige andre love og om ophævelse af lov om afgift af antibiotika og vækstfremmere anvendt i foderstoffer* [Act amending the Land Registration Tax Act and various other laws] § 5; *Bekendtgørelse nr. 1163 af 05.09.2016 af lov om afgift af chokolade- og sukkervarer m.m. (chokoladeafgiftsloven)* § 8. Previously, ice cream manufacturers were only able to apply for a 45% deduction for chocolate and confectionery products used to manufacture ice cream.

[89] *Lov nr. 1686 af 26.12.2017 om ændring af chokoladeafgiftsloven, lov om forskellige forbrugsafgifter, kildeskatteloven, lov om afgift af konsum-is, spiritusafgiftsloven og øl- og vinafgiftsloven* § 1; *Bekendtgørelse nr. 1163 af 05.09.2016 af lov om afgift af chokolade- og sukkervarer m.m. (chokoladeafgiftsloven)* § 22. From January 2018 – December 2019, Chapter 3 products are those containing 6 categories of taxable constituents: coconut; peanuts; other nut kernels, bulk products made wholly or partially from taxable products; other low-sugar taxable ingredients; and other high-sugar taxable ingredients. From January 2020, the tax on Chapter 3 products only includes 2 categories of products containing: high-sugar taxable ingredients; and low-sugar taxable ingredients. Kindly refer to Annex G for the corresponding rates applicable to these categories of Chapter 3 products.

18,9 billion in 2013; and around HUF 20 billion in 2014. This is generally in line with the estimated revenue.[90] Biro estimated that the average prices of processed foods increased by 10,2% over the period September 2011 to January 2012.[91] Of the manufacturers who participated in the survey for the *NIHD Assessment*: around 92% increased the prices of their PHPT products, of which around 79% fully passed the tax through to the prices, and around 13% only increased their prices by a portion of the tax; and only 8% did not increase their prices in response to the tax.[92] According to the *Ecorys Report*, energy drinks was the only category where prices did not increase as expected; and the prices for the categories of SSBs, salty snacks and pre-packaged confectionery mostly increased as expected, in line with the tax increases.[93]

In addition to existing price trends, product reformulation and strategic pricing behaviour, a number of factors contributed to these price changes. In the survey for the *NIHD Assessment*, participating manufacturers provided that the following factors contributed to their price increases, in descending order of importance: the increased prices of raw materials; the increased VAT rate from 25% to 27% in 2012;[94] the increase in minimum wages; the introduction of the Food Chain Supervision Fee in 2012;[95] the introduction of the Environment Product Fee in 2011;[96] and the narrowing of the domestic supply chain.[97] Further, sugar inflation was volatile, and increased substantially in 2011.[98] For example, one interviewee in the *Ecorys Report* explained that the prices of cocoa powdered beverages increased by 35% in 2012, but that PHPT only contributed 6,1% to this price increase; the

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[90] Ecorys *Report Annexes* 211; WHO Regional Office for Europe *Assessment of the Impact* 15 & 18.
[91] Biro (2015) *Food Policy* 17.
[92] NIHD *Assessment* 15.
[93] Ecorys *Report* 34; Biro (2015) *Food Policy* 7-9.
[94] European Commission & Eurostat *Taxation trends in the European Union 2014* 95.
[95] *2011. évi CLXVI. Törvény Magyarország 2012. évi költségvetését megalapozó egyes törvények módosításáról* [Law amending certain laws establishing Hungary's 2012 budget] § 82; *2008. évi XLVI. Törvény az élelmiszerláncról és hatósági felügyeletéről* [Law on the food chain and regulatory supervision] § 1 & 47B(1)-(3).
[96] *2011. évi LXXXV. Törvény a környezetvédelmi termékdíjról* [Law on the Environmental Product Fee] preamble & § 1(3) & 39.
[97] NIHD *Assessment* 16.
[98] Biro (2015) *Food Policy* 24; Hungarian Central Statistical Office "Consumer price indices by detailed groups of expenditure (2000-)" *KSH*; R Balázs "Taxation in Europe- Yearbook 2013 Hungary" (29-11-2013) *IREF Europe* <https://en.irefeurope.org/multi-pages/914/Hungary> (accessed 04-04-2019)., the excise tax rates on alcohol, tobacco products and fuel were increased twice in 2012 and once again in 2013.

remaining 28,9% was due to other factors, such as the VAT increase and the increased prices of raw materials.[99]

The prices of regular cola increased by a total 4,6% over the period 2011 to 2012, which was more than the expected 3,1%. Further, the profit margins for both retailers and manufacturers of SSBs increased over the period 2011 to 2013. This indicates that PHPT was over-shifted for the SSB category, and that strategic pricing behaviour was employed. This was particularly visible in the case of juices, where retailers' profit margins for untaxed juices increased significantly, while their profit margins for taxed juices increased only slightly.[100] The chocolate and confectionery category had the largest price increases, with total 10,6% and 9,9% increases for chocolate and confectionery respectively in the period 2011 to 2012. These price changes are much larger than the expected 4,9% increase for chocolate and 5,4% increase for confectionery.[101] For salty snacks, prices increased by 11,7% over the period 2011 to 2012, which was less than the expected 18,1% increase.[102] However, the price increases for this category were consistent with the pre-existing price trend.[103] Lastly, the prices of energy drinks did not respond to PHPT as expected, and actually decreased in 2011 and 2013. It was expected that energy drinks prices would increase by 37,5% over the period 2011 to 2012, but these prices only increased by 1% in 2012, and decreased by 0,7% and 1,9% in 2011 and 2013 respectively.[104] This could be because the original thresholds were too high, and most energy drinks escaped the application of PHPT. However, after the thresholds were lowered, these products were reformulated and the taxed ingredients were replaced by others, such as taurine.[105] In response to this reformulation, regulators included taurine in the tax base for energy drinks after 2013.[106]

As discussed above, increasing prices is one of several ways in which manufacturers respond to taxes on production. An initial report done by the WHO suggested that there were significant reformulation efforts after PHPT was

[99] Ecorys *Report Annexes* 219.
[100] Ecorys *Report* 29 & 34.
[101] 25-28 & 34.
[102] 34. The price of salty snacks increased by 6,3% in 2011, by 5,4% in 2012, and by 3,3% in 2013.
[103] 30.
[104] 34.
[105] Biro (2015) *Food Policy* 7-9.
[106] Ecorys *Report* 30.

implemented.[107] According to the *NIHD Assessment,* around 40% of manufacturers reformulated their products, and of the manufacturers that indicated how they reformulated their products: around 41% reduced the quantity of the targeted ingredient; 29% reduced the quantity of the targeted ingredient and replaced it with another ingredient; 18% completely removed the targeted ingredient and replaced it with another ingredient; and 12% completely removed the targeted ingredient and did not replace it with another ingredient.[108] In addition to the energy drinks category, reformulation also occurred on a smaller scale for chocolate and confectionery.[109] A number of food manufacturers have argued that there is limited incentive to reformulate products due to: the strict threshold quantities for the targeted ingredients; and the fact that the tax is not charged according to the content of the targeted ingredients in the final product as consumed, but on the content of these ingredients in the products as they are sold. Further, many manufacturers claim to have reformulated a number of their products before PHPT was implemented. Although the introduction of the PHPT contributed to these reformulation efforts, a number were already underway.[110]

The decision to reformulate will depend on a number of considerations. For example, in addition to price, taste is an important decision-making factor for consumers. After the PHPT was implemented, most peanut manufacturers introduced a non-salted version of these products, and the average Hungarian consumer regarded these versions as "tasteless." Because salt itself is not subject to the PHPT, consumers may change their consumption patterns by purchasing the non-salted, non-taxed peanuts and adding their own salt. Where this is done, the health objective is not achieved through the reformulation channel nor through the increased prices channel. It may even be possible that consumers add more salt to the non-taxed, un-salted peanuts than the original, taxed peanuts, which would have a more harmful effect on health. The decision to reformulate will take into consideration whether the benefit of reformulating a product to escape the tax

[107] WHO Regional Office for Europe *Using price policies* 21.
[108] NIHD *Assessment* 15.
[109] Ecorys *Report* 32. These reformulation efforts were also later met with changes to the PHPT Act, so that the new products were also subject to PHPT.
[110] Ecorys *Report Annexes* 218.

outweighs the potential for consumers to stop purchasing the product because they no longer enjoy the taste.[111]

The importance of taste was confirmed in the *NIHD Assessment*.[112] According to the survey done for this study: between 85% and 90% of consumers considered the taste to be the most important aspect of decision-making; the price was regarded as an important aspect by 80% to 85% of consumers; between 50% and 65% of consumers considered the brand to be an important aspect; and only around 35% to 50% of consumers considered the energy and nutritional composition as an important factor. Particularly in the case of SSBs, 92% of consumers regarded taste to be the most important factor. For energy drinks, consumers regarded the caffeine content as a very important factor.[113] As discussed above, product reformulation should aim to gradually change consumers' taste expectations, and should be a co-ordinated effort by manufacturers and the government health authority. Where taste is an important factor for consumers and reformulation occurs suddenly or in isolation, consumers are more likely to reject the reformulated products.[114]

5 2 3 2 Impact on consumption and health

Hungarian consumers responded in a number of ways to the increased prices after the introduction of the PHPT. In line with the policy objective, some consumers: reduced their consumption of PHPT products; or substituted towards healthier, untaxed products. However, substitution effects were observed that were not in line with the health objective, where: consumers substituted PHPT products with other products containing the targeted ingredients, but that were not subject to PHPT either because they did not fall within the specified tariffs codes, or because they were not pre-packaged; and consumers substituted PHPT products for cheaper versions that were still subject to the PHPT.[115] These latter substitution effects are not in line with the health objective, because: consumers did not reduce their consumption of the harmful ingredients; and the substituted products may even contain higher levels of the harmful ingredients.

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[111] Ecorys *Report Annexes* 218-220; NIHD *Assessment* 9.
[112] NIHD *Assessment* 9.
[113] 9.
[114] Ecorys *Report Annexes* 220.
[115] Ecorys *Report* 42. These substituted products either did not contain the targeted ingredients, or contained less than the threshold of the targeted ingredients.

It is difficult to estimate the exact impact that this tax had on sales and manufacturers' and retailers' profit margins, because: most of the affected businesses do not produce or sell PHPT products exclusively; and there were pre-existing decreasing demand trends for SSBs, confectionery and salty snacks.[116] Of the manufacturers who participated in the survey for the *NIHD Assessment*, the majority reported that their sales of PHPT products had decreased after PHPT was implemented: average monthly sales decreased for around 77,5% of these manufacturers; while around 17,5% reported that they had experienced no changes to their average monthly sales; and only around 5% reported that their average monthly sales had increased.[117] Further, the *NIHD Assessment* found that, of Hungarian consumers who consumed PHPT products in 2011, 26% to 35% consumed less of these products in 2012.[118] For the period 2011 to 2013, the *Ecorys Report* observed that the average consumption of PHPT products decreased by 10% to 15%.[119] An initial report done by the WHO suggested that there was a 27% decrease in sales of the targeted foods.[120] According to the WHO's final report however, consumption had decreased by between 11% and 28% by 2014, depending on the product category.[121]

The *Ecorys Report* observed the following changes in consumption of SSBs: the consumption of "cola" decreased by 2,7% in 2011, by 7,5% in 2012, and by 6% in 2013; and the consumption of juice decreased by 2% in 2011, by 2% in 2012, and by 4,4% in 2013.[122] For the period 2011 to 2013, the consumption of "cola" decreased by a total of 16,2%, and the consumption of juices decreased by a total of 8,4%. These findings are similar to those of the WHO, which reported that the consumption of SSBs had decreased by 20% in 2014.[123] According to industry figures for the period 2011 to 2013, SSBs sales decreased by: 15,1% for carbonated soft drinks; 14,24% for fruit juices; 2,7% for juices, 11,11% for fruit nectars; 15% for fruit drinks

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[116] Ecorys *Report Annexes* 220; Thiele & Roosen "Obesity, Fat Taxes and Their Effects" in *Regulating and Managing Food Safety* 184.
[117] NIHD *Assessment* 16.
[118] 9.
[119] Ecorys *Report Annexes* 215.
[120] WHO Regional Office for Europe *Using price policies* 21.
[121] WHO Regional Office for Europe *Assessment of the Impact* 5. This report only considers the PHPT categories of SSBs, energy drinks, pre-packaged sweets, salty snacks and powdered soup and salty condiments.
[122] Ecorys *Report* 34.
[123] WHO Regional Office for Europe *Assessment of the Impact* 5.

and teas; and 10% for iced teas.[124] Overall, industry data indicated that the sales of carbonated soft drinks decreased by 15,1%, and sales of juices decreased by 2,7% over this period. However, there was a pre-existing, decreasing trend for SSB demand: between 2007 and 2011, the demand for carbonated soft drinks had decreased by 13,51%, and the demand for juices had decreased by 22,92%. This decreasing demand trend was accelerated with the introduction of PHPT.[125] Further, there was a significant decrease in consumption of cocoa beverages in 2011, with substitution towards other sugary drinks including milk products, fruit juices and tea products.[126]

The *Ecorys Report* observed that the consumption of: confectionery increased by 0,3% in 2011, decreased by 0,7% in 2012, and increased by 0,2% in 2013; and chocolate increased by 1,3% in 2011, by 0,3% in 2012, and decreased by 0,1% in 2013.[127] Further, the sales of premium brand confectionery increased after the second year of implementation.[128] This is in line with the demand trend for previous years, and the *Ecorys Report* found that the demand for these categories remained stable and did not respond to price increases.[129] However, based on findings of the WHO and data provided by PHPT manufacturers, demand for these products decreased beyond the pre-existing trend.[130] The WHO reports that the consumption of pre-packaged sweets decreased by 14%. Further, industry data showed that: the sales of candies decreased by 15,1%, the sales of *dragées* decreased by 13,31% and the sales of desserts decreased by 10,88%; chocolate slabs was the only product in this category for which sales increased, by 3,02%.[131]

According to the *Ecorys Report*, the consumption of salty snacks decreased by 7,6% in 2011, by 6,2% in 2012, and then by 0,6% in 2013.[132] The total decrease in consumption for the period 2011 to 2012 was thus 13,8%. This finding is similar to: industry data, which indicated a 13,9% decrease in consumption over the same period; and the WHO's final report, which found that there was a 16% decrease in

[124] Ecorys *Report Annexes* 216.
[125] Ecorys *Report* 37.
[126] 42.
[127] 34.
[128] Ecorys *Report Annexes* 217.
[129] Ecorys *Report* 37.
[130] WHO Regional Office for Europe *Assessment of the Impact* 5; Ecorys *Report* 37.
[131] Ecorys *Report Annexes* 216.
[132] 216.

consumption.[133] However, the findings on the consumption changes for individual products within these categories were different.[134] Based on industry figures, the sales of certain products within this category decreased as follows: by 15,4% for chips; by 22,2% for nuts; and by 15,3% for floury products, which include pretzels and salty sticks, etc.[135] Industry data indicate that there was substitution away from taxed salty snacks, towards popcorn which is not subject to PHPT.[136] This substitution effect is not necessarily in line with the health objective, because the popcorn consumed may contain even more salt than the taxed salty snacks.

Further, there was a decrease in consumption of seasonings.[137] The WHO reported that the consumption of powdered soup and salty condiments had decreased by 11% by 2014.[138] Between 2011 and 2013, industry data indicate that there was a 14,29% decrease in sales of seasonings, and decreases between 3,73% and 32,19% for various types of soups.[139] Untaxed mono-spices compete with PHPT seasonings, so the decrease in consumption of seasonings indicates that there was an increase in consumption of mono-spices. Further, because mono-spices are used in home cooking, the decrease in demand for seasonings indicates that a number of consumers returned to home cooking. Similar to the substitution of popcorn for taxed salty snacks, this substitution towards home cooking may not be desirable in terms of the health objective, because home-cooked meals may contain the same level or even more of the targeted, harmful ingredients.[140]

The *Ecorys Report* observed that the consumption of energy drinks initially increased by 13,1% in 2011, before decreasing by 6,8% in 2012 and 6,6% in 2013.[141] This finding was similar to those of: PHPT manufacturers, whose sales data indicate that energy drinks consumption decreased by 31,4% during 2011-2013; and the WHO, which reported that energy drink consumption had decreased by 28% by 2014.[142] According to the data analysis in the *Ecorys Report*, the demand for energy

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[133] WHO Regional Office for Europe *Assessment of the Impact* 5; Ecorys *Report* 38. PwC found that there was a 12% decrease in sales between December 2011-May 2012.
[134] Ecorys *Report* 38.
[135] Ecorys *Report Annexes* 216.
[136] Ecorys *Report* 42.
[137] 42.
[138] WHO Regional Office for Europe *Assessment of the Impact* 5.
[139] Ecorys *Report Annexes* 216.
[140] Ecorys *Report* 42-43. Home cooking means that consumers cook meals at home from scratch. Examples of untaxed raw ingredients include sugars, yeast, baking powder, etc.
[141] 34.
[142] Ecorys *Report Annexes* 216; WHO Regional Office for Europe *Assessment of the Impact* 5.

drinks increased from 2005 to 2011, and only decreased after 2012 because of the amended definitions in this category.[143] However, industry data showed that the demand for energy drinks was already decreasing before PHPT was implemented: between 2007 and 2011, the demand for this category had decreased by 38,6%.[144]

From the above, it can be concluded that PHPT had a significant impact on the consumption of the targeted products. However, these consumption changes did not necessarily result in healthier consumption patterns, because: not all harmful ingredients were targeted by the tax; consumers replaced targeted products with other unhealthy products; portion-control is not necessarily present for home-cooking, and home-cooked meals may contain even more of the targeted ingredients; and substitution towards untaxed products and cheaper brands of the same products does not lead to decreased consumption of the targeted nutrients, because these substituted products may even contain more of the targeted nutrients.[145]

According to the WHO, during the period 2012 to 2014, the number of Hungarians consuming PHPT products: decreased from 22% to 16% for energy drinks; increased from 55% to 60% for sugar-sweetened soft drinks; increased from 68% to 84% for pre-packaged sweets; and increased from 69% to 71% for salty snacks.[146] Although the proportion of Hungarians consuming these products increased for most of the categories considered, the WHO reports various changes in consumption patterns that had an overall desirable impact on public health. The WHO found that, of Hungarians who consumed these products: 2% to 6% substituted for different products; 5% to 11% chose different brands; 5% to 16% reduced their consumption; and 7% to 16% chose cheaper products.[147] Further, for consumers who changed their consumption for the categories of SSBs, sugar confectionery, salty snacks, salty condiments and fruit jams, the *NIHD Assessment* found that 26% to 28% changed their consumption patterns positively, in line with PHPT's health objective.[148]

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[143] Ecorys *Report* 38.
[144] Ecorys *Report Annexes* 216.
[145] 218.
[146] WHO Regional Office for Europe *Assessment of the Impact* 5.
[147] 5.
[148] NIHD *Assessment* 9.

The WHO found that the majority of consumers who substituted PHPT products, substituted healthier options.[149] For example: 63% of energy drinks consumers and 61% of sugar-sweetened soft drinks consumers who substituted these products, chose mineral water; and 82% of pre-packaged sweets consumers and 86% of salty snacks consumers who substituted these products, chose fresh fruits and vegetables. The majority of consumers who changed their consumption patterns, maintained these changes, but up to 12% of these consumers increased their consumption later.[150] Further, the WHO found that overweight and obese individuals were more likely to change their consumption patterns than normal weight or underweight individuals: of Hungarian consumers who consumed PHPT products, overweight and obese individuals were 1,8 to 2,7 times more likely to change their consumption patterns than normal weight or underweight individuals.[151] Importantly, overweight and obese individuals were found to be 1,9 times more likely to reduce their consumption of SSBs than normal weight or underweight individuals.[152]

However, there were a number of factors that influenced consumption, apart from the tax-induced price changes.[153] For example, the finding of the *Ecorys Report* that consumers substituted cheaper brands of the taxed products was a pre-existing trend, which may have been driven by the economic crisis.[154] The increased VAT rate and prices of raw materials also affected consumers' purchasing power before the PHPT was implemented. Initially, price increases were the primary reason for the reduction in consumption. Over time, however, increased awareness on the unhealthy nature of these products became similarly as important as price increases in reducing consumption.[155] The WHO reports that this may be due to a number of factors, including that: consumers might have become accustomed to the increased prices; manufacturers and retailers might have absorbed the price increases; and health promotion campaigns might have further deterred consumption.[156]

According to the *NIHD Assessment,* the two main reasons for reduced consumption were the increased prices, and consumers learning about the adverse

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[149] WHO Regional Office for Europe *Assessment of the Impact* 6.
[150] 7.
[151] 8-9.
[152] 10.
[153] Ecorys *Report Annexes* 211.
[154] Ecorys *Report* 44-45.
[155] WHO Regional Office for Europe *Assessment of the Impact* 18.
[156] 18-19.

health effects of PHPT products.[157] Of the 26% to 35% of consumers who consumed less PHPT products: between 60% and 80% provided that they did so due to the increased prices; and 15% to 35% provided that they did so because they learned about the negative health effects.[158] With regards to consumer knowledge about PHPT, the following was observed from the survey conducted in the *NIHD Assessment*: more than two-thirds of consumers were aware that PHPT was implemented since September 2011, and that energy drinks, soft drinks and salty snacks were subject to this tax; just over 60% knew that pre-packaged sugar confectionery was subject to PHPT; just over 50% knew that powdered soups and seasonings were subject to PHPT; and less than half of consumers were aware that flavoured beer and alcoholic refreshments were subject to PHPT. Further, many consumers were mistakenly under the impression that certain non-taxed products were subject to PHPT: more than 40% believed that coffee was subject to PHPT; between 30% and 35% believed that fresh pastries were subject to PHPT; and around 15% believed that 100% fruit juices were subject to PHPT.[159]

Before PHPT was implemented, Hungary had a number of existing health policy measures. In terms of information and education, and regulations on the availability of certain foods for school children, for example, the National Institute for Food and Nutrition Science has run an education programme for elementary schools since 2010, which aims to: discourage SSB consumption; and promote water consumption by ensuring that free water is available at these schools.[160] Further, in terms of marketing regulations, all advertising to children in elementary schools, dormitories, kindergartens and child protection institutions is prohibited.[161] After PHPT

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[157] NIHD *Assessment* 10.

[158] 10. The reasons for reducing consumption varied between different categories of PHPT products. For example, more than 80% of salty snacks and pre-packaged sugar confectionery consumers who reduced their consumption reported that the increased prices was their reason for doing so, while increased prices was the reason for reduced consumption for 60% and 70% of energy drinks and soft drinks consumers respectively.

[159] 11.

[160] WCRF International *NOURISHING framework: Inform people about food and nutrition through public awareness* (2019) 7; better reference. This programme is the Hungarian Aqua Promoting Programme in the Young ("HAPPY"). In 2014, HAPPY reached over 43 500 students in 144 schools.

[161] *2008. évi XLVIII. Törvény a gazdasági reklámtevékenység alapvető feltételeiről és egyes korlátairól* [Law on the basic conditions and certain limitations of economic advertising] § 3(c) & 8(4). "Children" refers to children under 18 years. Advertisements that promote healthy lifestyles are exempt from this prohibition.

implemented, a number of other health policy measures were also introduced.[162] For example, regulations were introduced in 2012, restricting the sale of PHPT foods and drinks on school premises and at events that were arranged for school children. Further, the sale of certain other food products through vending machines at schools is also prohibited, if these products do not comply with the nutritional guidelines of the National Institute of Pharmacy and Nutrition.[163] Mandatory regulations on the maximum content of salt and trans-fatty acids ("TFAs") were also introduced in Hungary in 2012 and 2013 respectively.[164] The introduction of these additional measures is desirable from a public health perspective. However, the PHPT's effects on consumption need to be understood in the context of these other changes; it is difficult to ascertain the extent to which these changes are attributable to PHPT, and how effective PHPT may have been without complementary measures.

In addition to these other factors, data limitations also render it impossible to accurately estimate PHPT's effects on health.[165] Nevertheless, the WHO regards PHPT as a successful policy intervention, which achieved its policy objectives of: reducing consumption of the targeted products; promoting healthy diets; and improving the financing of health services.[166] In its final report in 2015, the WHO commends PHPT for achieving the following: long-term reductions in consumption of PHPT foods, with 59% to 73% of consumers sustaining their reduced consumption; substitution towards healthier alternatives for over two-thirds of consumers who changed products; an increased likelihood of overweight and obese individuals to change their consumption habits; improved health literacy among the population; and a 25% increase in the wages of health sector workers.[167]

To demonstrate the distributional impact of the PHPT, the WHO uses education levels as a signal of socioeconomic status.[168] Awareness of PHPT differed between education levels, and that those with higher levels of education knew more about the tax than those with lower levels of education. The proportion of individuals consuming PHPT products was much higher for Hungarians with a primary level of

[162] Ecorys *Report Annexes* 212. Overall, the measures introduced show a shift away from voluntary measures, towards stricter regulations. In addition to those discussed below, these measures included regulations on energy drink consumption by children, and physical education in schools.
[163] WCRF *Restrict food advertising* 11.
[164] WCRF *Improve nutritional quality* 8-10.
[165] Biro (2015) *Food Policy* 5.
[166] WHO *Assessment of the Impact of a PHPT* 2.
[167] 1-2.
[168] WHO Regional Office for Europe *Assessment of the Impact* 11.

education than for those with secondary and higher levels of education. Further, as a result of PHPT, Hungarian consumers with a primary level of education had a higher tendency to change their consumption of PHPT products than those with secondary and higher levels of education.[169] Biro is of the opinion that PHPT only reduced consumption of unhealthy foods among the lowest socio-economic groups, because: lower income groups have higher price sensitivities; and higher income groups are more likely to have had a higher education, and to have followed a relatively healthier diet before PHPT was implemented.[170]

The revenue generated by PHPT is assigned to the Health Insurance Fund ("HIF") in the government's budget.[171] These revenues contribute around 1% of the HIF's income.[172] This revenue was used to increase health sector wages by an average of 17,6% in 2012, and by a further 8,2% in 2013. These wage increases benefited almost 95 000 health sector workers, including employees, workers and public servants working in government-, church- and higher education- owned health service providers.[173] Although improved health education and healthcare funding are positive outcomes from PHPT, there has been little improvement in overweight and obesity prevalence since PHPT was implemented. OECD data indicate that the prevalence of overweight and obesity increased during the period 2007 to 2017. Self-reported data indicate that the prevalence of obese Hungarian adults: was around 19,5% in 2009, before PHPT was implemented; and had increased to 21% in 2014, after PHPT was implemented.[174] In terms of measured data, the prevalence of obesity among Hungarian adults: was 28,5% in 2010; and had increased to 30% in 2015.[175] Measured data show that the prevalence of obese 7- to 8-year-old children: was around 12% in the period 2007 to 2008; and had increased to around 13% by the period 2015 to 2017.[176] The Hungarian Minister of State for Health Care, Zoltán Ónodi-Szűcs, has argued that, although this is concerning, it does not indicate that the health interventions have not been effective, because consumption changes

[169] 12-13.
[170] Biro (2015) *Food Policy* 20.
[171] WHO Regional Office for Europe *Assessment of the Impact* 18.
[172] Biro (2015) *Food Policy* 5.
[173] WHO Regional Office for Europe *Assessment of the Impact* 18.
[174] OECD *Health at a Glance* (2011) 55; OECD/EU *Health at a Glance: Europe 2018* 127.
[175] OECD *Health at a Glance: Europe* (2012) 63; OECD *Health at a Glance* (2013) 49; OECD *Health at a Glance* (2017) 81-83.
[176] OECD/EU *Health at a Glance: Europe 2018* 125.

could take between five to ten years to translate to measurable health outcomes.[177] The latest data available for measured obesity rates is from 2015, but it will be interesting to monitor any changes in the future. Despite the increased prevalence of overweight and obesity since the implementation of the PHPT, the average life expectancy for Hungarians increased by 1,7 years between 2009 and 2015, to 75,7 years.[178]

5 2 3 3 Impact on other policy objectives

As discussed above, the PHPT was implemented among various other tax changes. Due to unrealistic budgetary expectations, numerous other tax changes were also implemented after PHPT, with a total of nine tax packages in 2012 alone. A number of these tax changes were not well structured, which worsened growth prospects. The need for budget adjustments led to hasty changes in legislation, which needed to be amended due to difficulties in implementation. The frequent amendments caused uncertainty to increase. Further, the changes in consumption tax rates increased inflation, and inflation expectations remained high, which in turn led to even higher inflation.[179]

Similarly to Denmark, the increased administrative costs for Hungarian manufacturers during the period 2011 to 2013 led to the close of a number of small- to medium-sized businesses and the retrenchment of around 1000 employees.[180] Local manufacturers were affected more severely than multinational companies,[181] which could make use of the export exemption;[182] local manufacturers that only manufactured PHPT products for the local market were thus affected the worst, as these were not able to compensate any of their losses from foreign markets. Apart from disadvantaging local manufacturers that only manufactured PHPT products for the local market, the export exemption also created complexities in the supply chain for local manufacturers that manufactured PHPT products for both the local market and for export. Because there is no incentive for local manufacturers to reformulate

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[177] Z Ónodi-Szűcs "The Hungarian government has made national health a priority: a reply" (2018) 391 *Lancet* 2211 2211.
[178] OECD *Health at a Glance* (2011) 25; OECD *Health at a Glance* (2017) 49.
[179] Balázs "Taxation in Europe- Yearbook 2013 Hungary" *IREF Europe*.
[180] Ecorys *Report Annexes* 221. Due to increased prices and decreased demand, many manufacturers needed to absorb a large portion of the increased costs.
[181] Holt (2011) *Lancet* 755.
[182] Ecorys *Report Annexes* 211.

their products for export, many of these manufacturers who reformulated their products, only used these new formulas for the Hungarian market.[183]

5 2 4 Soft Drinks Industry Levy in the United Kingdom

The importance of considering the responses of the food industry when food excise taxes are introduced has been highlighted in the case of the SDIL. Although the UK government has appealed to the food industry to reformulate their products, the manufacturers could respond in a number of ways. Briggs et al have modelled the potential effects on health and consumption from three different industry responses: reformulation; price increases; and changes in market share.[184] These authors estimated that the average *per capita* SSB consumption could be reduced by 58,5 millilitres per day, where manufacturers reduce sugar content in high-sugar and medium-sugar SSBs by 30% and 15% respectively.[185] It was estimated that such a reduction in sugar consumption would decrease the prevalence of obesity by 0,9%, and the incidences of T2DM by 31,1 persons per 100 000.[186] Further, Briggs et al estimated that: where manufacturers choose to increase their prices for medium- and high-sugar SSBs by 50% of the levy, the average per capita SSB consumption could be reduced by 32,7 millilitres per day; and where manufacturers engage in behaviours to increase the market share for low- and medium-sugar SSBs by 12%, and decrease the market share for high-sugar SSBs by 12%, the average per capita SSB consumption could be reduced by 36,6 millilitres per day.[187]

However, if the market share for low-sugar SSBs is only increased by 3% at the expense of high-sugar SSBs, Briggs et al estimate that the average per capita SSB consumption would increase by 3,6 millilitres per day.[188] This would lead to a 0,1% increase in the prevalence of obesity and the incidence of T2DM would increase by 2 persons per 100 000. If manufacturers introduce new medium-sugar SSBs into the market, it is possible that consumers might substitute: away from high-sugar SSBs,

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[183] 221.
[184] Briggs et al (2017) *Lancet Public Health* e15.
[185] e16 & e20.
[186] e18-e20. Where the sugar content of both high- and medium-sugar SSBs is only reduced by 5%, however, the average per capita SSB consumption would be reduced by 10,7ml per day, which would decrease the prevalence of obesity by 0,2%, and the incidences of diabetes type II by 5,8 persons per 100 000.
[187] PHE *Sugar reduction and wider reformulation programme: Report on progress towards the first 5% reduction and next steps* (2018) 30; Briggs et al (2017) *Lancet Public Health* e17-e20.
[188] Briggs et al (2017) *Lancet Public Health* e17-e20.

which would be in line with the health objective; or away from low-sugar SSBs, which would lead to an increase in sugar consumption and undermine the health objective. The most substantial health improvements could thus be achieved where SSB reformulation leads to 30% and 15% reductions in sugar content of high- and medium-sugar SSBs respectively. These health benefits could be supplemented where prices of high-sugar and medium-sugar SSBs are increased, and where the market share of low-sugar non-alcoholic beverages is increased.[189] Where manufacturers have a portfolio consisting of both SSBs and artificially-sweetened beverages ("ASBs") however, they may choose to spread the price increases across all of their products. This would obviously not be in line with the health objective, as low-sugar substitutes would not become relatively less expensive.[190]

During the period 2015 to 2017, the market share for low-sugar SSBs increased by around 5,31%, and the market share for medium- and high-sugar SSBs decreased by around 1,32% and 3,98% respectively.[191] A report by Public Health England done in May 2018 indicates that there was an 11% reduction in sugar content for the products subject to the SDIL. Further, this report estimates that there was a 6% reduction in calorie consumption from SSBs, and substitution towards low-sugar SSBs.[192] Further, there was a reduction in the sales weighted average from 146 kilocalories per portion of high-sugar SSBs in 2015, to 135 kilocalories per portion in 2017. On average across all non-alcoholic beverages, there were reductions in the sales weighted average sugar content from 3,9 grams per 100 millilitres to 3,4 grams per 100 millilitres, and in the sales weighted average energy content from 65 kilocalories per portion, to 61 kilocalories per portion.[193] It should be noted, however, that these reformulations and changes in market share took place in

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[189] e15-e17. For example, if new low-sugar non-alcoholic beverages are introduced, or if there is increased promotion or decreased relative prices of these low-sugar non-alcoholic beverages.

[190] e16.

[191] PHE *Sugar reduction and wider reformulation programme* 30. This is calculated as follows: 868 484 000 litres of high-sugar SSBs sales, 242 767 000 litres of medium-sugar SSBs sales, and 2 61 252 000 litres of low-sugar SSBs sales, out of 3 72 503 000 litres of all non-alcoholic beverages sales in 2017. Compared to the market share in 2015: the share of low-sugar SSBs increased from around 65,39% to around 70,70% in 2017; the share of medium-sugar SSBs decreased from around 7,72% to around 6,40% in 2017; and the share of high-sugar SSBs decreased from around 26,88% to around 22,90% in 2017.

[192] 4.

[193] 30. It should be noted that the sugar content in low-sugar SSBs did increase over this period, from 0,7g per 100ml SWA, to 0,8g per 100ml SWA.

the period leading up to the introduction of the SDIL, and were influenced by voluntary reformulation initiatives.[194]

It therefore appears that the SDIL has prompted food manufacturers to introduce new low-sugar SSBs and reformulate certain existing medium- and high-sugar SSBs to contain less than 5 grams of sugar per 100 millilitres. For example, *Coca-Cola Enterprises* introduced *Monster Hydro* energy drink, and *Lucozade Ribena Suntory* has reformulated most of its portfolio. *Coca-Cola* has over 40% of the volume market share of carbonated soft drinks in the UK, and 14% of these sales are the *Classic Coca-Cola* brand. *Coca-Cola* is reluctant to reformulate its *Classic* brand, and has instead reduced its portion sizes, and increased off-trade unit prices.[195] Further, the price of a can of regular *Coca-Cola* has increased by £0,08, from £0,70 by December 2018, and a 1,75 litre bottle of *Coca-Cola* has increased from around £1,25 to £1,49. This amounts to a price increase around 19,2%. It therefore appears that, while SDIL encourages manufacturers to reformulate their products, the increased costs for certain products have been passed through to consumers in the form of increased prices. However, there has been a pre-existing trend towards low-sugar SSBs. The SDIL will likely encourage this trend, but where manufacturers do not reformulate, consumption changes will be encouraged through increased prices or reduced portion sizes.[196]

5 2 5 Flavoured Drinks Tax in Mexico

The average pre-tax price for carbonated soft drinks was around MXN 10,10 per litre in 2013, and it was expected that the tax would increase their prices by around 9,9%.[197] During the period 2013 to 2014, there was an 11% increase in the prices of carbonated flavoured drinks, and a 3% increase in the prices of non-carbonated

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[194] 87.
[195] Schaefer "Soft Drinks in 2014: A World in Flux" *Euromonitor International*.
[196] Schaefer "Soft Drinks in 2014: A World in Flux" *Euromonitor International*.
[197] M Colchero, J Salgado, M Unor-Munguia, M Molina, S Ng & J Rivera-Dommarco "Changes in Prices After an Excise Tax to Sweetened Sugar Beverages Was Implemented in Mexico: Evidence from Urban Areas" (2015) 10 *PLoS ONE* 1 9; M Andalón & J Gibson *The 'Soda Tax' is Unlikely to make Mexicans Lighter: New Evidence on Biases in Elasticities of Demand for Soda* IZA Institute of Labour Economics Discussion Paper No 10765 3. Colchero et al provide that the average pre-tax price for carbonated drinks was around MXN 10,10/l, and MXN 14,70/l for non-carbonated drinks. Andalón & Gibson provide that it was expected that the tax would increase the average prices for carbonated soft drinks by around 9,9%, and by around 6,8% for non-carbonated soft drinks.

drinks.[198] Further, there was an increase in the prices of diet soda, but the prices of other untaxed beverages did not change significantly.[199] Preliminary results from the first quarter of 2014 showed that there was a 10% decrease in sales of soft drinks.[200] Similarly to most other food excise taxes, there is limited evidence on the changes in consumption of flavoured drinks in Mexico after the implementation of the Flavoured Drinks Tax.[201] From the studies that are available, there are differing conclusions as to the changes in consumption, which usually result from different interpretations of the relevant data.[202] Colchero et al (2016) initially estimated that there was a 6% reduction in sales in 2014, and that this reduction increased to 12% by December 2014.[203] It was estimated that such a reduction translated to around 4,2 fewer litres per person per year.[204]

Aguilar et al estimated that there was a 6,7% reduction in sales of the taxed drinks in 2014.[205] Many sources, including the WHO, reference Colchero et al (2017a), who estimate that there was a 5,5% reduction in sales of the taxed drinks in 2014, and a 9,7% reduction in 2015.[206] A later study by Colchero et al (2017b) estimates that the reduction in sales of the taxed drinks in 2014 was closer to 6,3%.[207] Of this 6,3% reduction, the largest reductions were observed for low income households, where it was estimated that the sales of taxed drinks decreased by 10,3%. Further, a 6,9% reduction in sales was observed for urban areas, compared to a 3,9% reduction for rural areas. It has also been estimated that the sales of

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[198] Colchero et al (2015) *PLoS ONE* 9.

[199] M Colchero, J Rivera-Dommarco, B Popkin & S Ng "In Mexico, Evidence of Sustained Consumer Response Who Years After Implementing a Sugar-Sweetened Beverage Tax" (2017) 36 *Health Aff* 564 565.

[200] WCRF *Curbing global sugar consumption* 11.

[201] Colchero et al (2017) *Health Aff* 565.

[202] R Cherukupalli "Growth rates and aggregates: brining data to soda wars" (10-06-2016) *The Lancet Global Health Blog* <http://globalhealth.thelancet.com/2016/06/10/growth-rates-and-aggregates-bringing-data-soda-wars> (accessed 04-10-2018).

[203] M Colchero, B Popkin, J Rivera & S Ng "Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study" (2016) 352 *BMJ* 1 5.

[204] 5.

[205] A Aguilar, E Gutierrez & E Sierra *Taxing to Reduce Obesity* (2016) unpublished draft paper prepared for *JEL,* 09-06-2016 (available at <http://www.enriqueseira.com/uploads/3/1/5/9/31599787/taxing_obesity_submited_aer.pdf>) 37.

[206] Colchero et al (2017) *Health Aff* 564 & 568; WHO *Taxes on sugary drinks* 3.

[207] M Colchero, M Molina & C Guerrero-López "After Mexico Implemented a Tax, Purchases of Sugar-Sweetened Beverages Decreased and Water Increased: Difference by Place of Residence, Household Consumption, and Income Level" (2017) 147 *JN* 1552 1554.

untaxed bottled water increased by 16,2% in 2014, and that the sales of untaxed beverages in general increased by 5,3% in the same year.[208]

The impact on health is very difficult to assess because the tax has been in operation for a relatively short period of time, and will depend on a broad range of complicated factors. Aguilar et al estimated that a 6,7% reduction in consumption of soft drinks would lead to a 6% decrease in calorie consumption from these drinks.[209] Grogger uses demand elasticities and estimates that a 12% to 14% increase in prices could lead to an average weight loss of 2,5 to 3,7 pounds.[210] It is acknowledged that this weight loss is not substantial enough to eliminate overweight and obesity. However, according to a report done in the USA, a 1% to 5% reduction in Body Mass Index ("BMI") for adults could lead to meaningful health improvements and reduce healthcare expenditure.[211] Because Mexico and the USA have similar weight distributions, Grogger suggests that a 1% to 5% BMI reduction in Mexico could also be considered significant for health improvements. Grogger calculated that a 1% BMI reduction for adults in Mexico would be equivalent to a 1,6 pounds average weight loss.[212] Because it has been estimated that the prices of the targeted drinks would increase by at least 12%, which would lead to a 2,5 pound weight loss, Grogger concludes that the flavoured drinks tax will have a meaningful impact on health.[213]

Sassi argues that the 6% reduction in sales and the 4,2 litre reduction in consumption estimated by Colchero et al (2016) might be insufficient, because it is unclear what substitution effects resulted from reduced soda consumption.[214] Colchero et al (2016) provide that a 7,3% reduction in consumption of the targeted drinks could have a positive impact on health.[215] However, the tax rate might be too modest, and more significant health gains could be achieved if the tax rate was

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[208] Colchero et al (2017) *Health Aff* 568; Colchero et al (2017) *JN* 1554.
[209] Aguilar et al *Taxing to Reduce Obesity* 3-4 & 37.
[210] J Grogger *Soda Taxes and the Prices of Sodas and Other Drinks: Evidence from Mexico* IZA Institute of Labour Economics Discussion Paper No 9682 (2016) 23.
[211] J Levi, L Segal, R St Laurent, A Lang & J Rayburn *F as in Fat: How Obesity Threatens America's Future* Robert Woods Johnson Foundation & Trust for America's Health Issue Report (2012) 23.
[212] Grogger *Soda Taxes* 24.
[213] 24.
[214] Sassi (2016) *BMJ* 1; M Colchero, B Popkin, J Rivera & S Ng "Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study" (2016) 352 *BMJ* 1 5.
[215] M Colchero, C Guerrero-López, M Molina & J Rivera "Beverage Sales in Mexico before and after Implementation of a Sugar Sweetened Beverage Tax (2016) 11 *PLoS ONE* 1 7.

increased.[216] Andalón and Gibson point out a number of flaws used in the calculations done by other authors, and emphasize the need to consider the changes in the quality, rather than just changes in the quantity of the drinks consumed.[217] According to Andalón and Gibson, there is evidence that quality adjustments did take place. Despite the 17,7% price increases in cheaper cities, the expenditure on the targeted drinks in these cities only increased by less than half of this rate. This indicates that, as the prices increased, consumers substituted for cheaper alternatives.[218] Because of these effects, the studies estimating the health impact of the tax may be less accurate. After accounting for the relevant errors in other studies, Andalón and Gibson estimate that this tax will only result in an average weight loss of 1 pound, which is not considered to have a meaningful impact on health.[219]

The *Final Response Document* compares the 10% price increase in Mexico to the anticipated price increases in South Africa as a result of the Health Promotion Levy ("HPL"), so it is also important to note the differences between SSB consumption in Mexico and South Africa. In 2013, the average *per capita* consumption of carbonated soft drinks was around 154 litres per year in Mexico, and around 70 litres in South Africa. Further, the average *per capita* calorie consumption from SSBs was around 160 kilocalories per day in Mexico, and around 80 kilocalories per day in South Africa in 2014.[220] These differences are significant: all things being equal, a 10% increase in SSBs prices in South Africa would likely lead to much smaller changes in sales and average energy intakes. In the words of the *Final Response Document*, it appears that "consumption of sugary beverages did decrease" in Mexico after the Flavoured Drinks Tax was introduced, but it is arguable that not any decrease in consumption justifies the imposition of such a tax; the decrease in consumption

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[216] 6-7.
[217] Andalón & Gibson *The 'Soda Tax.'* 7-14.
[218] 2, 6 & 17. This finding is substantiated by reports that show that Coca-Cola increased their prices by 15% more than Pepsi, and by 20% more than other drinks. Further, the prices of Coca-Cola products increased more as the package sizes decreased, which provides more scope for consumers to mitigate the price increases.
[219] 24.
[220] Popkin & Hawkes (2016) *Lancet Diabetes Endocrinol* 178.

should lead to some level of health improvements that outweigh the negative effects.[221]

It has been reported more recently that the prevalence of overweight and obese adults over the age of 20 increased by 1,8 percentage points to 73% during the period 2012 to 2018. The Mexican government has reported that, in the light of this increase, existing obesity measures should be strengthened. However, it was also noted that the prevalence of overweight and obese school-aged children has reduced by 4,8 percentage points, to 32,1% over the same period.[222] While the reduction in childhood obesity is clearly an important and commendable outcome, it is not clear to what extent the Flavoured Drinks Tax contributed to this reduction, particularly in the light of the increased prevalence of overweight and obesity among adults. Further, the consumption changes in Mexico took place in the context of other policy measures. For example, according to Popkin and Hawkes, there was a decline in SSBs sales before the soft drinks tax was implemented, possibly because of a successful civil society organisation media campaign aimed at raising public awareness about SSBs and diabetes through popular Mexican culture.[223]

Other measures outlined in the *Mexican Strategy* include measures aimed at: increasing fruit and vegetable consumption; improving decision-making through labelling requirements; reducing the marketing of unhealthy foods; and decreasing the consumption of sugar, sodium and saturated fats.' Mandatory guidelines for food and beverages in schools have been used in Mexico since 2011. These guidelines make use of certain nutritional criteria, and prohibit food products that do not comply with these criteria. Further, these guidelines prohibit soda, restrict the availability of other unhealthy food products to two days per week, and encourage the consumption of healthy foods and water. In terms of the mandatory labelling

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[221] Andalón & Gibson *The 'Soda Tax.'* 24. Although a tax that increases prices by less than 20% will likely reduce demand for the targeted products, substitution effects will have a significant impact on overall sugar and energy consumption changes.

[222] Estados Unidos Mexicanos Camára de Disputados *Iniciativa de Decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley dle Impuesto sobtre la Renta, de la Ley del Impuesto al Valor Agregado, de la Ley del Impuesto Especial sobre Producción y Servicios y del Código Fiscal de la Federación Gaceta Parlamentaria Número 5361-D 8 de septiembre de 2019* (2019) [Mexican Chamber of Deputies Initiative whereby various provisions of the Income Tax Law, of the Value Added Tax Law, of the Special Tax on Production and Services and of the Law of Special Production and Services Tax and of the Fiscal Code of the Federation Parliamentary Gazette No. 5361-D of 8 September 2019)] LXXXV. "School-aged children" are between of 5-11 years old.

[223] Popkin & Hawkes (2016) *Lancet Diabetes Endocrinol* 178; WCRF *Building momentum* 25.

regulations implemented in Mexico since 2014, front-of-package ("FOP") labels are required to be applied to many pre-packaged food products, including dressings, cereals, flavoured drinks, candy, chocolate and desserts. In terms of calories or kilocalories, and as a percentage proportion of the recommended daily intakes, these labels need to list the following nutrients contained in the product or per portion: saturated fat; other fats; total sugars; sodium; and energy.[224] Further, Mexico also has marketing regulations in terms of which certain food products may not be advertised on TV for certain TV programmes and films during the period 2:30 to 19:30 on weekdays, and during the period 07:00 to 19:30 on weekends. These restrictions make use of a NPM, and cover a number of food products, including SSBs, chocolate and confectionery products and potato chips.[225] Although there is very little available evidence on the impact of the Junk Food Tax, the simultaneous introduction of both of these taxes is likely to have strengthened the signalling effect, in addition to the preceding public awareness campaigns.

5 3 Health Promotion Levy in South Africa

5 3 1 Impact on prices, product reformulation and consumption

The *Policy Paper* provides that the objective of HPL is to decrease excessive sugar consumption, and thereby support the NDOH's goal of reducing the prevalence of obesity and non-communicable diseases ("NCDs").[226] Further, the *Final Response Document* provides that the HPL will "reduce the consumption of sugary beverages and promote better health outcomes" through both channels of: reducing the demand and consumption of SSBs through increased prices to consumers; and reducing the sugar content in SSBs, through incentivising manufacturers to reformulate their products to contain less sugar.[227] Although the *Policy Paper* does not provide for a measurable goal against which to evaluate the efficacy of the HPL, Manyema et al and Brownell et al are cited as studies that "suggest that a 10 to 20 per cent price increase of SSBs may be required to translate

[224] México Secretaría de Salud *Estrategia* 61; WCRF *Offer healthy food* 10; WCRF *Nutrition label standards* 8-9; WCRF *Restrict food advertising* 2.
[225] WCRF *Restrict food advertising* 2. These TV programmes are those classified as "A," where more than 35% of the viewers are below the age of 13. These regulations also restrict the advertising of these food products in certain films classified as "A."
[226] RSA National Treasury *Policy Paper* 2.
[227] RSA National Treasury & SARS *Final Response Document* 8.

into a *meaningful* impact on health outcomes" (emphasis added).[228] Among others, Manyema et al rely on assumptions relating to: price elasticities; the pass on rate; the prevalence of obesity in South Africa; the estimates of consumption; and the estimates of the population.[229] Based on these assumptions, the mathematical model used by Manyema et al projected that a 20% tax on SSBs would reduce average daily energy consumption by 30 kilojoules for all adults, which would lead to a 2,4% reduction in obesity for females, and a 3,8% reduction for males.[230] These authors therefore regard a 20% SSB tax as an effective intervention, which could contribute around 25% of the NDOH's goal to reduce the prevalence of obesity by 10% by 2020.[231]

However, these calculations are based on a 20% price increase with 100% pass-through; where prices increase by 10% and the pass-through rate is 80%, then the prevalence of obesity would decrease by 1,1% and 1,9% for females and males respectively.[232] It was estimated that South African adults consumed a daily average of 184 millilitres of SSBs, 200 millilitres of unsweetened 100% fruit juice and 204 millilitres of milk per day in 2014. Importantly, Manyema et al: assume that the tax would be fully passed through to consumers; and use price elasticities from other jurisdictions, assuming that the own-price elasticity of demand for SSBs was -1,299.[233] Using similar data, modelling studies done in 2015 and 2016 respectively projected that, over 20 years, a 20% SSB tax could reduce: the number of T2DM-related deaths by 21 000 and T2DM healthcare costs by R10,3 billion;[234] and the number of stroke incidences by around 86 000 and stroke-related healthcare costs by R5,1 billion.[235] Where the tax rate is 10%, the T2DM-related healthcare savings would be adjusted to R6,2 billion.[236] Further, the number of stroke incidences and stroke-related healthcare savings were adjusted: to around 50 000 and R3 billion where the SSB tax was 10%; to around 75 000 and R4,5 billion where the tax pass-

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[228] RSA National Treasury *Policy Paper* 10; Manyema et al (2014) *PLoS One* 1.
[229] Manyema et al (2014) *PLoS One* 2-3.
[230] 4-5.
[231] 8.
[232] 8.
[233] 2 & 4.
[234] M Manyema, JL Veerman, L Chola, A Tugendhaft, D Labadarios & K Hofman "Decreasing the Burden of Type 2 Diabetes in South Africa: The Impact of Taxing Sugar-Sweetened Beverages" (2015) 10 *PLoS One* 1 10-11.
[235] Manyema et al (2016) *BMC Public Health* 7.
[236] Manyema et al (2015) *PLoS ONE* 10.

through rate was 80%; and to around 32 000 and R1,8 billion where SSBs had a lower own-price elasticity of demand, of -0,85.[237]

It is acknowledged that the lack of elasticity data specific to South Africa is a drawback in accurately predicting the effect of a 20% SSB tax in South Africa: if the own-price elasticity of SSBs in South Africa is lower than the one used in the calculations, then the tax would have a smaller impact on SSB consumption and obesity rates. The lack of elasticity data specific to South Africa also meant that no distinction was made between the differences in price elasticities of demand for carbonated SSBs, sweetened fruit juices and syrups and concentrates.[238] However, these are important considerations, given that the own-price and cross-price elasticities of demand between SSBs and these potential substitute beverages will affect both consumers' and manufacturers' responses to the tax, and ultimately its overall influence on dietary quality and health outcomes. According to Marketline data, syrups or "squashes" represented 10,1% of the soft drinks market value in South Africa in 2017, while: carbonates represented 56,2%; energy drinks represented 8,9%; nectars represented 8,5%; packaged water represented 4,3%; and sports drinks represented 3,6%.[239]

Among other criticisms, the narrow range of products targeted by the HPL has been criticised, because it is still possible for consumers to substitute other sugary products such as fruit juice and sugar-sweetened food products.[240] As discussed above, because of the negligible own-price elasticity of 100% fruit juices, Stacey et al (2017) argue that their inclusion under the HPL would only "yield meaningful reductions in sugar intake from their consumption" if the food industry responds to the HPL by promoting these as substitutes for the targeted SSBs.[241] After the HPL was implemented, Stacey et al (2019) found that there were no statistically significant price changes for bottled water, non-carbonated HPL products or 100% fruit juice.[242] For 100% fruit juices in containers exceeding 1,2 litres, however, these

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[237] Manyema et al (2016) *BMC Public Health* 7.
[238] 6-7.
[239] Marketline *Soft Drinks in South Africa September 2018* Marketline Industry Profile 0044-0802 (2018) 11. Further, "other" soft drinks represented 8,4% of the market value in 2017.
[240] RSA National Treasury & SARS *Final Response Document* 6.
[241] Stacey et al (2017) 105 *Prev. Med* S29. As discussed above under heading "4 4 1 Taxes on all sugar or certain sugar-sweetened products" in Chapter 4 of this thesis.
[242] Stacey et al (2019) *Soc Sci Med* 4.

authors find a statistically significant reduction in price.[243] This finding might indicate that, among other responses, the food industry has promoted 100% fruit juices as substitutes for the targeted SSBs. However, while fruit juice consumption contributes to obesity and obesity-related NCDs, they offer some additional nutritional value, and they contribute "to rural employment and incomes."[244]

Further, because product reformulation is more complicated for products that contain intrinsic sugars exclusively, and because other SSB taxes have not included 100% fruit and vegetable juices, it is unclear how these should be treated.[245] Although this provision may need to be reconsidered in the future, it is submitted that the current exemption for 100% fruit and vegetable juices in terms of the HPL is appropriate until further research is conducted. The condition that no sugar or sweetening matter may be added to these juices is stricter than the SSB taxes in a number of other jurisdictions discussed above.[246] Further, this exemption could provide incentive for manufacturers to reformulate products that would otherwise be exempt: the tax liability could be completely eliminated, and the administrative burden reduced where manufacturers reformulate fruit and vegetable juices that contain added sugar or other sweetening matter, which would otherwise be classified as 100% fruit and vegetable juices. Such an outcome is arguably in line with the health objective, because added sugar consumption may decrease, and only those juices that offer the most nutritional benefit are exempt.

In addition to reconsidering the fruit juice exemption in the future, it was provided in the *Final Response Document* that other sugary food "products would also need to be addressed."[247] In response to a question about whether the HPL could potentially be extended to other sugary foods during a radio interview, the Chief Director of Health Promotion, Nutrition, Oral Health and Food Control, Lynn Moeng replied:

> "We have to do one thing at a time... so at the moment, we are still managing the beverage tax... other countries have started taxing other foods, rather than just beverages. But for now, we said, "Let's focus on one area," and the evidence was

[243] 4.
[244] Stacey et al (2017) 105 *Prev. Med* S29.
[245] RSA National Treasury & SARS *Final Response Document* 6.
[246] Discussed above under heading "4 4 3 3 Exemptions and exclusions" in Chapter 4 of this thesis.
[247] RSA National Treasury & SARS *Final Response Document* 6. As discussed above under heading "4 4 1 Taxes on all sugar or certain sugar-sweetened products" in Chapter 4 of this thesis.

> mostly pointing towards the liquid sugar. And we haven't had the discussion on how to broaden the scope to other products, but it doesn't mean it will never happen."[248]

As discussed above, most jurisdictions have limited these taxes to SSBs, because: other foods offer additional nutritional value; it is more administratively complicated to calculate the sugar content in food products; it is more difficult to reformulate these products; the scope of sugary food products is much broader than SSBs; the substitution effects are more complicated with foods than with beverages; and the regressive impact might be larger if all sugary food products were taxed.[249] Further, for jurisdictions that have targeted a broader range of unhealthy foods, it is unclear whether overall dietary quality improved. Although it is unclear what the status of the relevant health concerns would have been in the absence of these taxes, the prevalence of overweight and obese adults increased in both Mexico and Hungary.[250] Because of the limited available evidence on the effectiveness of these taxes, it is submitted that the decision to limit the scope of the HPL to SSBs is reasonable.

The *Policy Paper* originally proposed that a rate of 20% be imposed on SSBs, because studies have indicated that this is the most effective rate to have a significant impact on consumption and the relevant health outcomes.[251] Based on the sugar content of one 330 millilitre tin of Coca-Cola, this rate of 20% would have translated to a charge of 2,29 cents per gram of sugar in SSBs.[252] However, when HPL was implemented on 1 April 2018, the 4 grams per 100 millilitres tax-free threshold was also introduced, and the rate was lowered to 2,1 cents per gram of sugar in excess of this threshold.[253] It was provided in the *Final Response Document* that the threshold was introduced and the tax rate was revised in order to mitigate job losses and the impact on the industry.[254] While industry engagement may be

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[248] L Ramphele "SA to introduce new user-friendly warning labels on 'junk food' (radio interview)" (25-02-2019) *CAPETALK* <http://www.capetalk.co.za/articles/339106/sa-to-introduce-new-user-friendly-warning-labels-on-junk-food> (accessed 28-10-2019).

[249] Griffith et al *Using taxation* 12; Ecorys *Report* 39-40.

[250] Estados Unidos Mexicanos Camára de Disputados *Iniciativa de Decreto 2019* 49; OECD *Health at a Glance: Europe* (2012) 63; OECD *Health at a Glance* (2013) 49; OECD *Health at a Glance* (2017) 81-83; OECD/EU *Health at a Glance: Europe 2018* 125. As discussed above under heading "5 2 3 2 Impact on consumption and health" in Chapter 5 of this thesis, the prevalence of obesity among 7-8 year old Hungarian children also increased during the period 2007-2017.

[251] RSA *Taxation of Sugar Sweetened Beverages* 4.

[252] 3.

[253] Part 7A of Schedule No. 1 of the Customs and Excise Act. Since 1 April 2019, this rate was increased to 2,21c/g of sugar exceeding 4g/100ml in HPL products.

[254] RSA Treasury *Final Response Document* 8.

important, the WHO provides that food policies should be protected "from undue influence of commercial and other vested interests."[255] It is arguable that the original formulation of the HPL was better-suited for health promotion than this revised formulation, and less focus should have been given to these industry interests. It is argued that the tax-free threshold and the reduced rate will have a much weaker impact on health than the original rate of 2,29 cents per gram of sugar.[256]

According to Van Walbeek, "the tax-free threshold could result in changes in the mixing instructions, that have no meaningful impact on sugar intake, but that reduces the impact of the tax."[257] There is evidence of this occurring in South Africa after the introduction of the HPL: before April 2018, the mixing instructions for *Nesquik* powder suggested that three teaspoons be diluted in 200 millilitres of low-fat milk; and after April 2018, the mixing instructions for the same *Nesquik* powder suggested that two teaspoons be diluted in 200 millilitres of low-fat milk.[258] Further, Van Walbeek provides that:

> "Carbonates in SA showed partial pass-through for carbonates but no significant pass-through for concentrates... Within carbonates, the price increases for non-sugar drinks were similar to that of sugary drinks... There were no significant increases in the price of untaxed beverages after the introduction of the Health Promotion levy... (as expected)."[259]

However, Stacey et al (2019) provide that the average price increase for all carbonated soft drinks was R1,006 per litre, and the largest price increases were observed for the smallest containers.[260] The price increases were similar for both HPL carbonates above ("high-sugar") and below ("low-sugar") the 4 grams per 100 millilitres sugar content threshold. Further, for the smallest containers in the carbonates category, the prices for low-sugar products increased significantly more than the prices for high-sugar products. These authors find that the pass-through for high-sugar products in smaller containers was around 100%, and between 51% and 56% for larger containers, with an overall pass-through rate of around 68%. Further, Stacey et al (2019) observed that a number of HPL products were reformulated to escape the 4 grams per 100 millilitres sugar threshold.[261] Coca-Cola for example,

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[255] WHO *Global Action Plan* 32.
[256] RSA National Treasury & SARS *Final Response Document* 7-8.
[257] Van Walbeek *Sugar Tax: Lessons from International Experience* 22.
[258] 23.
[259] 16.
[260] Stacey et al (2019) *Soc Sci Med* 4.
[261] 4.

has reduced the sugar in their beverages by more than a quarter after the HPL was announced in 2016. Coca-Cola claims that these reductions were made in response to the global drive to "provide greater choice" to customers however, and not as a result of the impending tax.[262]

According to Stacey et al (2019), the prices for reformulated products increased comparably to those for HPL products that were not reformulated, despite the eliminated tax liability.[263] Therefore, while the prices of untaxed products, such as 100% fruit juice and unsweetened, unflavoured still water did not increase, there were similar increases for all: the prices of high-sugar HPL products; pre-existing low-sugar HPL products; and low-sugar HPL products that were reformulated from high-sugar HPL products to contain less than 4 grams per 100 millilitres sugar. These authors provide that:

> "Conditional on demand price elasticities, it is possible out counter-intuitive findings of increased prices on lower sugar carbonates could be evidence of an intra-firm strategy to compensate for profits lost on higher sugar and therefore higher tax products by increasing margins on lower sugar products (particularly if demand for these products is less price sensitive)."[264]

These authors conclude that, although HPL created an incentive for consumers to substitute HPL products with 100% fruit juices and bottled water, it has not resulted in price changes that encourage substitution away from high-sugar HPL products towards low-sugar HPL products. Lastly, Stacey et al (2019) comment that the use of multiple tiers or thresholds may not be necessary to incentivise product reformulation because "many brands with over 10 g of sugar per 100mL reformulated to *well below 5g of sugar per 10ml*" (emphasis added).[265] Further, certain SSBs have been reformulated to contain less sugar, but are still above the 4 gram per 100 millilitres threshold.[266] This might indicate that it was not the tax-free threshold that encouraged product reformulation in South Africa, but rather the *tax-per-gram* component of the HPL's tax rate.

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[262] K Cullinan "Coke denies sugar cut linked to tax" (23-05-2019) *Health-E News* <https://health-e.org.za/2019/05/23/coke-denies-sugar-cut-linked-to-tax/>. During the period 2016-2018, Coca-Cola reduced the average sugar content in their beverages by 26%. This reduction was ahead of the industry commitment to reduce average sugar content by 15%.

[263] Stacey et al (2019) *Soc Sci Med* 6-7.

[264] 6-7.

[265] 7.

[266] Coca-Cola "Changing beverage trends: Meeting needs for every occaision" (09-11-2018) *Coca-Cola Africa* <https://www.coca-colaafrica.com/stories/changing-beverage-trends-meeting-needs-for-every-occasion#> (accessed 28-10-2019). For example, Coca-Cola introduced a new product "Coca-Cola Original Taste – Less Sugar" in 2018, which contains 30% less sugar than the *Coca-Cola Classic* brand. This product still contains more than 6g/100ml sugar.

Because the HPL has only been levied for a relatively short period of time, it is difficult at this stage to predict the effects that HPL might have on overall dietary quality. This is further complicated because food industry has not responded as anticipated. However, it could be argued that the pricing strategies observed by Stacey et al (2019) are not in line with the government's objective of reducing sugar consumption.[267] Conversely, it could be argued that some of the price changes are clearly in conflict with this objective. This is suggested through the observation that, for HPL products in the smallest containers, the price increases were actually larger for low-sugar products than for high-sugar products.[268] Further, even though the consumption of low-sugar non-alcoholic beverages increased relative to high-sugar beverages, the substitution towards concentrates and syrups has not been examined. As pointed out by Van Walbeek, there is scope for tax avoidance in the case of these products, so the HPL might have not increased their prices, and the ultimate deterrent effect might not be as anticipated.[269]

Without considering overall changes in dietary quality or the potentially negative health consequences from certain artificial sweeteners, the reformulation of certain HPL products could ultimately be in line with the goal of reducing obesity and other NCDs where: reformulation serves to change consumers' tastes; and consumers replace high-sugar HPL products with low-sugar HPL products. It appears that the consumption of low-sugar HPL carbonated drinks as a proportion of all carbonated drink consumption has increased: from 6,9% of all carbonated drink consumption in 2012 and 2013; and 8,7% of all carbonated drink consumption in 2017; to 12,1% of all carbonated drink consumption in 2018.[270] A number of authors have explained the need for more extensive research on consumption patterns in South Africa for different groups of consumers, detailing elasticities and cross-price elasticities of

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[267] Stacey et al (2019) *Soc Sci Med* 6.
[268] 4.
[269] Van Walbeek *Sugar Tax: Lessons from International Experience* 16.
[270] BMI Research *Annual Quantification Report Sparkling Soft Drinks in South Africa Media Feedback* (2014) 6; BMI Research *Media Feedback Report Sparkling Soft Drinks in South Africa* (2018) 10; BMI Research *Media Feedback Report Sparkling Soft Drinks in South Africa* (2019) 9. In 2012 and 2013, carbonated soft drinks consumption was comprised of: 44% regular cola; 49,1% regular flavoured dinks; 4,9% diet cola; and 2% diet flavoured drinks. In 2017, carbonated soft drinks consumption was comprised of: 39,3% regular cola; 52% regular flavoured drinks; 4,5% diet cola; and 4,2% diet flavoured drinks. In 2018, carbonated soft drinks consumption was comprised of: 39,1% regular cola; 48,8% regular flavoured drinks; 4,8% diet cola; and 7,3% diet flavoured drinks.

demand between SSB substitutes and various foods.[271] Without such research, it is difficult to predict overall changes to dietary quality. Due to the lack of evidence, it is unclear what effects a higher effective tax rate would have on the food industry response and consumption. Bodker et al argue however, that in addition to increasing prices by at least 20%, these taxes need to form part of a comprehensive policy scheme in order to have a meaningful impact on public health.[272]

5 3 2 Developments in the multiple-intervention approach

As discussed above, the multiple-intervention approach was emphasized in the *Final Response Document*, which provides that the HPL "is not the only intervention being implemented but rather complements other interventions," and the HPL forms part of the "comprehensive package of measures" identified in the *Strategy*, "and has not been put forward as the single policy response that will achieve the desired health outcomes."[273] Among others, the following measures have been implemented, which could have a positive impact on health outcomes in South Africa: the Food-Based Dietary Guidelines ("FBDGs"), which were revised in 2012;[274] the inclusion of nutrition education in the Life Orientation curriculum in schools;[275] regulations requiring the provision of ingredients lists on labels of pre-packaged food products;[276] regulations restricting misleading claims on pre-packaged food labels an in certain forms of food advertising;[277] voluntary guidelines in terms of the *National Guide for Healthy Meal Provisioning in the Workplace*;[278] mandatory sodium and TFAs reformulation regulations;[279] the NSNP, which aims to

[271] Stacey et al (2019) *Soc Sci Med* 6; A Saxena, N Stacey, P Del Ray Puech, C Mudara, K Hofman & S Verguet "The distributional impact of taxing sugar-sweetened beverages: findings from an extended cost-effectiveness analysis in South Africa" (2019) 4 *BMJ* e001317 1 10. For example, Saxena et al were not able to consider the substitution effects for drinks such as 100% fruit juices and milk or the effects on consumption of other unhealthy food products, "due to a lack of empirical estimates and expert consensus on cross-price elasticities."
[272] Bodker et al (2015) *Prev. Med* 202-203.
[273] RSA National Treasury & SARS *Final Response Document* 5. Discussed above under heading "1 1 2 Rationale for government intervention to address health concerns" in Chapter 1 of this thesis.
[274] Vorster et al (2013) *SAJN* S7.
[275] WCRF *Give nutrition education* 3.
[276] Regs 9 and 17 of GN R 146 in *GG* 32975 of 01-03-2010.
[277] Reg 22(a).
[278] RSA NDOH *National Guide for healthy meal provisioning in the workplace.*
[279] GN R 214 in *GG* 36274 of 20-03-2013; GN R 127 in *GG* 34029 of 17-02-2011.

ensure school children are fed nutritious meals;[280] and the NNW, which aims to advance certain nutrition messages.[281]

Overall however, there has been limited development in the multiple-intervention approach. In the *South African Health Review* report, the Health Systems Trust provides that "no new health-related primary legislation has been enacted" since 2015, and summarizes the recent developments in this regard:

> "Three draft Bills have been published for comment, dealing with tobacco control, the National Health Insurance Fund, and proposed amendments to medical schemes legislation. Other public health-oriented targets have included the proposal to raise the age limit for alcohol consumption from 18 to 21 years, and the tax on sugar-sweetened beverages... Only a minor change to the labelling requirement for alcoholic beverages has been issued..."[282]

Among others, the lack of development of a more effective food labelling system and mandatory marketing regulations could limit the HPL's potential to improve health outcomes. Among other various responses discussed above, the food industry could increase marketing efforts in order to undermine the health objective of food taxes.[283] In addition to offering insufficient protection to children from marketing practices, the limited regulation of marketing in South Africa does not prevent this undesirable response.[284] This is inconsistent with the HPL's health objective. In a radio interview from February 2019, Lynn Moeng provides that FOP labelling regulations are currently being researched, and are under consideration for 2020:

> "For the major nutrients, the Department decided – like many other countries that have already started the process – to investigate what would have more meaning for consumers? What would they understand better? So the process... at the moment is at the research stage to understand what consumers would understand better so we can use that to engage industry people to say "this is what consumers interpret better as labels..." Our focus will not be on all the nutrients, it will be on just a few- your sugar, your salt, your fat... also creating awareness on other things which they are currently not aware on. So at the moment, we are trying to... take the process of the research. We have a research unit that's doing the work for us."[285]

Evidence suggests that higher-income consumers are likely to benefit more from labelling regulations, so the use of a consistent FOP labelling system could help

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[280] Mills *Considering the Best Interests of the Child* 245.
[281] South African Government "Basic Education celebrates National Nutrition Week" *South African Government;* RSA NDOH *National Nutrition Week 2017* 1.
[282] Health Systems Trust *South African Health Review* (2018) 2.
[283] Benade & Essop (2017) *SA Heart* 151. As discussed above under heading "3 5 2 1 Manufacturer and retailer behaviour" in Chapter 3 of this thesis.
[284] Mills *Considering the Best Interests of the Child* 251.
[285] Ramphele "SA to introduce new user-friendly warning labels on 'junk food' (radio interview)" *CAPETALK.*

consumers to interpret the relevant nutritional information, particularly where these consumers have limited nutrition education or literacy in the language in which the nutrition information is printed.[286] Where FOP labelling systems are based on a NPM, they could also incentivise food manufacturers to improve the nutritional content of their products, in order to comply with the NPM's "healthy" requirements where applicable.[287] However, the lack of mandatory regulations requiring the provision of nutritional information is an obstacle to FOP labelling. While Draft Regulations 429 have been criticised for various reasons, it was implicitly acknowledged that mandatory nutritional information is necessary in order to classify foods in terms of an NPM for both marketing regulations and FOP labelling purposes.[288]

The lack of mandatory labelling regulations requiring the provision of nutritional information could also: undermine the HPL's objective of reducing sugar consumption due to relative price increases, because the provision for assumed sugar content for SSBs without this information leads to arbitrary price increases; and lead to wasted time and resources, as legislators need to revise the provisions for the HPL products that do not provide nutritional information. Although labelling regulations are not the most "cost-effective" intervention, the implementation of mandatory regulations requiring the provision of nutritional information would support the health objectives of these other interventions and reduce administrative complications for market-based interventions.[289]

5 3 3 Challenges and sustainability

Market-based interventions in other jurisdictions have been subject to a number of legal challenges, based on: jurisdictional issues and lack of authority to introduce taxes; incompatibility with international trade agreements; and constitutional challenges, including limiting consumer rights or other commercial rights.[290] Section

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[286] Hawkes & Sassi "Improving the quality of nutrition" in *Promoting Health, Preventing Disease* 144; Berning & Sprott (2011) *Journal of Food Distribution Research* 74.

[287] RSA NDOH "Nutrient Profile Model" *RSA NDOH*; Emrich et al (2017) *PLoS ONE* 2.

[288] Regs 52(1) and 53(9)(a)-(b) of GN R 429 in *GG* 37695 of 29-05-2014. Among others, Draft Regulations provide for the mandatory labelling of nutritional information on all pre-packaged foodstuffs. The proposed FOP labelling system was based on an NPM, which would be calculated according to this nutritional information.

[289] RSA NDOH *Strategy* 19. As discussed above under heading "2 2 2 Labelling regulations" in Chapter 2 of this thesis.

[290] WCRF *Building momentum* 19.

2 of the Constitution provides that the "Constitution is the supreme law of the Republic; law or conduct inconsistent with it is invalid..."[291] The Constitution provides for the rule of law as one of the founding values of the RSA as "one, sovereign, democratic state."[292] Flowing from this value is the standard of rationality for state actions. The Constitutional Court has provided that Parliament may not act arbitrarily or capriciously, and that there needs to be a "rational relationship between the scheme... and the achievement of a legitimate government purpose."[293]

The rationality test is objective, and the legislation in question does not need to be reasonable or appropriate.[294] While it is possible for the HPL to reduce health inequalities in theory, it is unclear whether this is actually achieved in practice.[295] However, the Constitutional Court has provided that this rationality standard is not concerned with "whether there are other means that could have been used, but whether the means selected are rationally related to the objective sought to be achieved."[296] It could probably be argued convincingly that: the HPL is rationally connected to the legitimate government interests of health promotion and reducing government healthcare expenditure on obesity and NCDs. The HPL would therefore likely pass the rationality test and it is unlikely that it could be challenged on any of these grounds successfully.[297]

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[291] S2 of the Constitution; B Croome *Taxpayers' Rights in South Africa: An analysis and evaluation of the extent to which the powers of the South African Revenue Service comply with the Constitutional rights to property, privacy, administrative justice, access to information and access to courts*, DPhil thesis, University of Cape Town (2008) 15.

[292] S1(c) of the Constitution.

[293] *New National Party of South Africa v Government of the Republic of South Africa and Others* 1999 5 BCLR 489 (CC) para 19.

[294] *Pharmaceutical Manufacturers Association of South Africa and Another: In re Ex Parte President of the Republic of South Africa and Others* 2000 3 BCLR 241 (CC) para 84; *Law Society of South Africa and Others v Minister of Transport and Another* 2011 2 BCLR 150 (CC) para 35.

[295] Hernández-Quevedo & Weatherly "Health promotion" in *Promoting Health, Preventing Disease* 261.

[296] *Albutt v Centre for the Study of Violence and Reconciliation* 2010 5 BCLR 391 (CC) para 51; *Glenister v President of the RSA & Others* 2011 JOL 26915 (CC) para 67; *Fedsure Life Assurance Ltd and Others v Greater Johannesburg Transitional Metropolitan Council and Others* 1998 12 BCLR 1458 (CC) para 44-45; I Currie & J De Waal *The Bill of Rights Handbook* 6 ed (2013) 566; Further, the Constitutional Court has provided that Parliament "will exercise its judgment as to the appropriate policy to address..." the relevant issues and that this "judgment is political and may not always coincide with views of social scientists or other experts. The legislature and the executive have access to the empirical evidence necessary for formulating tax laws and policies in the light of various competing objectives, and are in the best position to make these decisions. Under the separation of powers doctrine, the judicial branch has further acknowledged that decisions relating to socio-economic rights particularly are polycentric tasks, and should be taken by the duly elected legislative branch of government.

[297] GK Goldstein *The winds of change – an analysis and appraisal of selected constitutional issues affecting the rights of taxpayers* Doctor of Accounting Science thesis, University of South Africa

However, it should be noted that the HPL is not the first tax on soft drinks in South Africa. A tax on certain mineral water and soft drinks products was implemented from 1993 until 2002. This tax was not repealed because of legal challenges, but due to economic and regressivity concerns. According to the *Budget Review* in 1999:

> "It is recognised that the scrapping of excise taxes could contribute to significant volume growth, benefiting primarily lower income groups... It is trusted that the manufacturers of soft drinks will honour their commitment to pass on the reduction in excises to consumers in the form of lower retail prices. Moreover, the Federation of Soft drink Manufacturers undertook to plough the secondary benefits back into the South African economy by providing direct support to small and medium-sized enterprises, particularly those with close links to the industry."[298]

This tax was also levied in terms of the Customs and Excise Act, but was implemented for revenue-raising purposes, and was not linked to a reprising objective. This previous tax was payable on a number of beverages, including bottled waters, flavoured mineral waters and non-alcoholic beverages with or without added sugars. However, fruit and vegetable juices were not subject to this tax. This tax was levied according to the volume of these specified beverages, regardless of their sugar content. The tax rate started at 10,36 cents per litre in 1993, and increased each year until its highest rate of 14,83 cents per litre in 1997 and 1998. The rate was then reduced to 12,00 cents per litre in 1999, and further reduced each year before it was repealed with effect from 1 April 2002.[299] Regressivity concerns were cited in 2000 in the *Budget Review,* and it was provided that the "lower tax

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(2012) 126 & 158; S36 of the Constitution. While this minimum standard of rationality is likely to be met, a higher standard is required where laws limit fundamental rights contained in the Bill of Rights. In this regard, section 36 of the Constitution provides that "rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom," considering all relevant factors, including "the importance of the purpose of the limitation."The "relevant factors" in S36(1) also include "the nature and extent of the limitation," "the nature of the right," "the relation between the limitation and its purpose," and any "less restrictive means to achieve the purpose." Further, S36(2) provides that "no law may limit any right entrenched in the Bill of Rights," except "as provided in subsection (1) or in any other provision of the Constitution." Although this is a higher standard than rationality, the provision that laws may limit fundamental rights provided "that the limitation is reasonable and justifiable in an open and democratic society" presents an obstacle to constitutional challenges to tax laws. It could probably be argued convincingly that, even if the HPL amounts to a limitation of any of the rights in the Bill of Rights, that the limitation is "reasonable and justifiable in an open and democratic society," particularly considering the "importance of the purpose of the limitation" in the light of the increasing burden of obesity and NCDs. For these reasons, constitutional challenges on market-based interventions are likely to fail. Legal challenges to administrative decisions taken when applying tax laws have been more successful in this regard, but these issues are not important for present purposes. Apart from these cases, there has been limited "success in attacking the constitutionality of fiscal legislation to date."

[298] RSA National Treasury *Budget Review* (1999) 162.

[299] RSA National Treasury *Policy Paper* 8 July 2016 11.

burden should benefit consumers and contribute to growth and job creation in the downstream small enterprise sector."[300] According to the *Policy Paper* however, this tax "was phased out after lobby efforts by the industry."[301]

Among other reasons, SSB taxes are unpopular because they increase prices for consumers and threaten commercial interests. The HPL is no exception, and it is important to strengthen efforts to increase and maintain support for this intervention. Although the objective of the HPL is health promotion and not revenue generation, this does not ensure that it will be sustainable. For example, even after the introduction of the Saturated Fat Tax and the reformulation of the Danish Soda Tax according to the health objective, these taxes were repealed because of their impact on the economy, including the increase in cross-border trade, increased administrative costs for Danish companies and threatening Danish jobs.[302] Another common criticism of these taxes is that their impact is regressive. In this regard, the earmarking of the tax revenue generated has been shown to increase support.[303] It has been suggested that a portion of the revenue generated from the HPL could be used to mitigate the regressive impact of the tax.[304] The *Final Response Document* and the *Policy Paper* argue that earmarking is not necessary, and that any regressive impact will be offset in terms of progressive health gains, because poorer consumers are disproportionately affected by obesity and NCDs.[305] However, this argument is not convincing, because the out-of-pocked ("OOP") payments as a proportion of healthcare costs are smaller for these consumers, and a relatively larger portion is funded through government healthcare expenditure.[306]

According to Saxena et al, the average OOP payments as a proportion of healthcare costs in 2019 were: 82% for income quintile 5 ("Q5"); 56% for income quintile 4 ("Q4"); 41% for income quintile 3 ("Q3"); 18% for income quintile 2 ("Q2"); and 21% for income quintile 1 ("Q1").[307] It is therefore unlikely that the increased

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[300] RSA National Treasury *Budget Review* (2000) 95.
[301] RSA National Treasury *Policy Paper* 8 July 2016 11
[302] Vallgarda et al (2015) *EJCN* 225; Snowdon *The Proof of the Pudding* 24.
[303] Mann (2017) *Environmental Law* 722.
[304] Jerrett (2018) *FDLJ* 479; RSA National Treasury & SARS *Final Response Document* 5.
[305] RSA National Treasury *Policy Paper* 10; RSA National Treasury & SARS *Final Response Document* 11.
[306] SECTION27 *Submission on the Taxation of Sugar Sweetened Beverages Policy Paper* 11.
[307] Saxena et al (2019) *BMJ* 4 & 6. Per capita income for: Q1 is <R6486; Q2 is between R6486 and R13 818; Q3 is between R13 819 and R28 091; Q4 is between R28 092 and R71 478; and Q5 is >R71 479.

prices of SSBs are equally offset in this context.[308] However, because the burden on the healthcare system from the health issues associated with SSB consumption might decrease as a result of the HPL, it is possible that poorer consumers could receive larger healthcare benefits for other health issues.[309] After the HPL was implemented, Saxena et al estimated that the 10% tax could lead to around 7900 T2DM-related averted deaths, around R1,7 billion in government healthcare savings, and around R1,3 billion in healthcare savings in OOP payments over 20 years.[310] Further, it was estimated that HPL could increase annual tax revenues collected by R5,6 billion.[311] These authors assumed 100% pass-through rate, and derived the own-price elasticities of demand for SSBs for different income quintiles.[312] For both of these arguments against the regressivity criticism however, the tax's impact on the relevant health issues and healthcare expenditure are important considerations.[313] However, the HPL's impact on consumption and health is not clear, because of: the lack of available evidence on consumption patterns; and the limited developments within the multiple-intervention approach to counter-act undesirable responses to the tax.[314]

Further, when considering regressivity, it is important to consider the tax and benefit system as a whole, instead of each individual tax.[315] A full examination of the tax and benefit system is beyond the scope of this thesis. However, a number of tax changes that were implemented alongside the adoption of the HPL have been described as regressive, including the increase in the VAT rate from 14% to 15%.[316] Although this development has been subject to criticism, the adoption of the National Health Insurance ("NHI") could potentially improve redistribution objectives within the tax and benefit system.[317] One criticism in this regard is that, despite the fact that the

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[308] SECTION27 *Submission on the Taxation of Sugar Sweetened Beverages Policy Paper* (2016) 11.
[309] Ss 24(a) and 28(1)(b) of the Constitution; SECTION27 *Submission on the Taxation of Sugar Sweetened Beverages Policy Paper* 2-5.
[310] Saxena et al (2019) *BMJ* 6.
[311] 4, 6 & 8.
[311] Jeffery *A Stealth Tax* 1. Where these benefits do not materialise, it is argued that HPL will merely be a regressive tax that further increases the economic burden on poor consumers.
[312] Saxena et al (2019) *BMJ* 3.
[313] Jeffery *A Stealth Tax* 1.
[314] Stacey et al (2019) *Soc Sci Med* 6.
[315] Muller *A Framework* 37-39.
[316] Budget Justice Coalition *Budgeting in an Era of Austerity and State Capture: A Five-Year Review of Budget Policies and Outcomes* (26 February 2019) submission to the select and standing committees on finance 5.
[317] RSA NDOH "NHI" (12-08-2011) <http://www.health.gov.za/index.php/nhi> (accessed 28-10-2019).

NDOH has acknowledged that healthcare expenditure would need to increase significantly in order to provide quality healthcare:

> "The 2019 Budget proposes a mere 6.6% nominal increase in spending on health. When average (CPI) inflation of 5.2% and population growth of 1.6% are taken into account, this represents a real per capita decline in health care funding... Moreover, the 2019 Budget proposes that R700 million less will be spent on health in 2019/20 compared to the 2018 MTBPS estimate."[318]

The *Final Response Document* provided that "there is a commitment for budgetary support for health promotion programmes identified by the NDOH."[319] In this context, the National Treasury provided in the 2018 *Budget Review* that:

> "Over the MTEF period, R368 is allocated to begin a public awareness campaign to complement the health promotion levy on sugary beverages and to establish a health technology assessment unit. The unit will analyse the cost effectiveness of various health interventions"[320]

Stacey et al (2019) describe this allocated revenue as being "soft earmarked for health promotion activities," but by "December 2018, revenue raised had exceeded forecasts and reached approximately 2 billion ZAR."[321] It was expected that the HPL would generate around R1,82 billion and R1,98 billion for the 2019/20 and 2020/21 periods respectively.[322] This thesis does not undertake to assess all budgetary allocations and tax changes, but R368 million over 3 years (the MTEF period) is a very small proportion of the revenue that is estimated to be collected from the HPL over the same period. Further, this R368 million is not solely allocated to NCD "prevention and health technology assessments," but also includes the establishment of "the interim NHI Fund and related structures."[323] According to the Budget Justice Coalition, surveys indicate "citizens' trust in Parliament and in government has waned over the past five years."[324] While governments should ideally be able to make political decisions independently from expenditure decisions, the popularity of these taxes could still be greatly improved where the expenditure is directly connected to the purpose of the tax.[325] As mentioned above, taxpayers are

[318] Budget Justice Coalition *Budgeting in an Era of Austerity and State Capture* 40.
[319] RSA National Treasury & SARS *Final Response Document* 11.
[320] RSA National Treasury *Budget Review* (2018) 60.
[321] Stacey et al (2019) *Soc Sci Med* 2.
[322] RSA National Treasury *Budget Review* (2018) 195.
[323] RSA National Treasury *Budget Review* (2018) 55.
[324] Budget Justice Coalition *Budgeting in an Era of Austerity and State Capture* 5.
[325] Doetinchem Hypothecation of tax revenue 5; Mann (2017) *Environmental Law* 722.

more likely to support a tax where they benefit from the tax revenue collected.[326] According to Van Oordt, "it seems reasonable to expect people to be more willing to pay taxes to governments that are less corrupt" and "more effective."[327] Particularly where public confidence is limited, it might be favourable to earmark the revenue from these taxes.[328]

5 4 Conclusion

Most of the taxes discussed in this thesis have been implemented for health objectives, but these taxes also affect other taxation objectives.[329] The impact that these taxes could have on other policy objectives is a very important consideration, because the Danish Soda Tax, the Saturated Fat Tax and South Africa's old soft drinks tax were all repealed because of economic and regressivity concerns.[330] While taxing a broader scope of unhealthy foods and beverages could have a larger impact on health outcomes, they could also have a larger negative impact on these other policy objectives. Further, although it is unclear how these taxes may have mitigated the rise in the relevant health concerns in Hungary and Mexico, the prevalence of adult obesity in both of these jurisdictions has increased since the implementation of these broader food taxes.[331] Further, it is difficult to predict health outcomes or attribute changes in consumption and health outcomes to these taxes, because there is a broad range of factors that could influence these, including: pre-existing demand trends, as were observed in Denmark and the UK; the influence of other interventions, such as marketing regulations and school-based interventions in Hungary and Mexico; the food industry response, which could include product reformulation, increased marketing, strategic pricing, etc; and consumers' substitution patterns, which affects the overall change in consumption.

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[326] Van Oordt *The Influence of Social Ties on Taxation* 6-7 & 21. As mentioned above under heading "3 4 2 1 Earmarked taxes and public support" of this thesis. According to Van Oordt, there is a positive correlation between tax morale and confidence in the government.

[327] M Van Oordt "Value-added tax effort" (2018) 16 *eJournal of Tax Research* 37 41.

[328] RSA National Treasury *A Framework for Considering Market-Based Instruments* 102.

[329] As discussed above under Chapter 3 "Considerations for Market-Based Interventions" of this thesis.

[330] RSA National Treasury *Budget Review* (1999) 162; Vallgarda et al (2015) *EJCN* 225.

[331] OECD *Health at a Glance* (2011) 55; OECD *Health at a Glance: Europe* (2012) 63; OECD *Health at a Glance* (2013) 49; OECD *Health at a Glance* (2017) 81-83; OECD/EU *Health at a Glance: Europe 2018* 125-127; Estados Unidos Mexicanos Camára de Disputados *Iniciativa de Decreto* (2019) LXXXV.

While it is unlikely that the HPL could be subject to legal challenges, it is important to note that both market-based and non-market-based interventions have been repealed as a result of successful legal challenges. For example, the 2002 Mexican Sweetener Tax was challenged because it violated international trade agreements, and the Portion Cap Rule in NYC was challenged because the NYC Board of Health had violated the separation of powers doctrine.[332] Where these interventions are repealed, their potential to pursue health objectives is clearly limited. Regardless of potential legal challenges, it is important to maintain public support for these interventions to be sustainable. It has been suggested that the earmarking of tax revenues collected from the Sugar-Sweetened Beverage Product Tax ("SSBPT") and the PBT increased public support in this regard.[333] These revenues could be used to reinforce the health objective, or to mitigate the negative impact on other policy objectives.[334] National Treasury and SARS are reluctant to earmark HPL revenues "as it will introduce rigidities in the budgeting process," but a small portion of these revenues have been "soft earmarked" for certain health initiatives.[335]

It is difficult to predict the effects that HPL might have on overall dietary quality because it has been in effect for a relatively short period of time, and there is limited research on consumption patterns in South Africa.[336] However, while product reformulation has taken place after the implementation of the HPL, Stacey et al (2019) observed pricing strategies that were not in line with the health objective, where manufacturers mostly increased prices of lower-sugar and sugar-free beverages to the same extent as the prices for the original SSBs.[337] Further, even though the consumption of low-sugar non-alcoholic beverages increased relative to high-sugar beverages, the substitution towards concentrates and syrups has not been examined. As pointed out by Van Walbeek, there is scope for tax avoidance in the case of these products, so the HPL might have not increased their prices to the same extent as ready-to-drink HPL products.[338]

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[332] WCRF *Building momentum* 19; *New York Statewide Coalition of Hispanic Chambers of Commerce v New York City Department of Health and Mental Hygiene* 16 N.E.3d 538 (N.Y. 2014) 546-548; WTO *Mexico- Tax Measures on Soft Drinks* 132, 138 & 162.
[333] WCRF *Building momentum* 15.
[334] RSA National Treasury & SARS *Final Response* 5.
[335] Stacey et al (2019) *Soc Sci Med* 2; RSA National Treasury & SARS *Final Response Document* 11.
[336] Stacey et al (2019) *Soc Sci Med* 6; Saxena et al 10.
[337] Stacey et al (2019) *Soc Sci Med* 6.
[338] Van Walbeek *Sugar Tax: Lessons from International Experience* 16.

While the use of tax-free thresholds appears to have encouraged product reformulation in Hungary and the UK, it appears that the HPL's threshold was not the main driver for product reformulation because: a number of products were reformulated to "well below" the tax-free threshold; and certain SSBs were reformulated to contain less sugar, but still contain more than 4 grams of sugar per 100 millilitres. It is submitted that the *tax-per-gram* component of the HPL's rate was a larger influence in this regard, as well as other factors such as consumer tastes.[339] Because of the lack of evidence, it is unclear whether a *tax-per-gram* rate or higher effective tax rate would have influenced the food industry response or consumption. Bodker et al argue however, that in addition to increasing prices by at least 20%, these taxes need to form part of a comprehensive policy scheme in order to have a meaningful impact on public health.[340] All of the comparative jurisdictions studied in this thesis have some form of mandatory regulations restricting the marketing of unhealthy foods and beverages to children, as well as mandatory nutritional information labelling regulations. It is submitted that the limited development of these two types of interventions in particular could frustrate the health objective of the HPL.

[339] Stacey et al (2019) *Soc Sci Med* 7.
[340] Bodker et al (2015) *Prev. Med* 202-203.

CHAPTER 6: CONCLUSION

6 1 Overview of research

The need for government intervention to address the increasing issues caused by dietary risk factors is identified in Chapter 1. This introductory chapter explains a number of criticisms against sugar-sweetened beverage ("SSB") taxes, and discusses the policy context for the introduction of the Health Promotion Levy ("HPL"). Chapter 2 expands the discussion on the policy context, and considers how a number of non-market-based interventions have been used in other jurisdictions. One of the "overarching questions" from Chapter 1 is considered: while it is possible for non-market-based interventions to achieve health objectives, none of the relevant interventions should be used in isolation, and these should be used to complement each other. The position of a number of these interventions is discussed in the South African context, and in particular, the lack of mandatory regulations requiring the provision of nutritional information on the labels of pre-packaged foodstuffs is highlighted as an obstacle for effective implementation of the HPL.

Chapter 3 discusses SSB taxes in the light of a number of aspects of taxes in general, including taxation policy objectives. It is explained that there are a number of channels through which these taxes could pursue health objectives, and mention is made of how certain aspects of formulation could affect these channels. This Chapter explains how it could be useful for policymakers to consider the relevant channel, as well as how consumers and manufacturers could respond. Furthermore, it is considered how non-market-based interventions could be used to complement the health objective, and potentially minimise negative effects on other taxation objectives. Chapter 4 specifically considers how various aspects of formulation could influence the health impact of SSB taxes. Taxes on other unhealthy nutrients and on a broader range of sugary products are also discussed, and the formulation of the HPL is critically analysed in the light of the comparative study.

Chapter 5 explains that in order for these taxes to effectively pursue health objectives, they need to be sustainable. Potential challenges to sustainability are identified, and these taxes' impact on health and other policy objectives are considered for the comparative jurisdictions. This chapter answers the remaining "overarching questions" identified in Chapter 1: it is possible for SSB taxes to change

consumption patterns; these taxes could have potentially negative effects on other policy objectives; and certain aspects of formulation, and the use of non-market-based interventions could be used to complement the health objective of market-based interventions, as well as to mitigate the potentially negative effects on other policy objectives. Potential legal challenges are considered with reference to the Philadelphia Beverage Tax ("PBT") and the Portion Cap Rule, and other reasons for the repeal of these taxes are considered, with reference to Denmark and South Africa.

The potential impact that these taxes have had on health outcomes is discussed, with reference to the relevant considerations from Chapters 3 and 4. While it is difficult to attribute consumption and health changes to these taxes, it appears that product reformulation has occurred, and consumption of the targeted products has decreased in Hungary, Mexico and the United Kingdom ("UK"). However, because there are a number of responses from consumers and manufacturers that could undermine the health objective, it is unclear whether these outcomes have an overall positive impact on health. It is difficult to determine how various factors have influenced health outcomes along with these taxes, but it appears that the prevalence of the relevant health concerns has not improved in jurisdictions where a broader range of foods were taxed in addition to SSBs.

The current formulation of the HPL is then discussed in Chapter 5, with reference to findings from the limited available research on the impact of the HPL. The current approach to addressing obesity and non-communicable diseases ("NCDs") in South Africa is considered, in the light of other developments in the "multiple-intervention approach." The main research question is addressed, and it is concluded that, in the light of the comparative study, the HPL has not been formulated effectively in order to achieve its policy objectives. It is submitted that the scope of the HPL is suitable until more evidence becomes available on the effectiveness of broader food taxes in other jurisdictions, but that the tax-free threshold does not support the health objective.

6 2 Recommendations

Mandatory regulation on the provision of nutritional information on all pre-packaged foodstuffs is an important foundation for nutrient-based taxes. Along with minimising tax avoidance and other outcomes that do not support the HPL's health

objective, these are an important foundation for other health interventions such as front-of-package ("FOP") labelling systems. Other non-market-based interventions such as public awareness campaigns and marketing regulations should also be used to complement the health objectives of market-based interventions. These other measures could be funded through the revenues generated by the HPL. Particularly because public confidence is limited in South Africa, the dedication of these revenues to some health project or towards minimising any regressive impact could increase public support.

The current scope of products subject to the HPL is suitable, given the lack of evidence on consumption patterns within South Africa as well as the lack of evidence that taxes on a broader range of food products improve health outcomes in other jurisdictions. While it might be necessary to reconsider the fruit juice exclusion in the future, the current exclusion of only unsweetened 100% fruit and vegetable juices is acceptable, given that other SSB taxes exclude fruit juices and it is unclear whether these should be taxed differently from other SSBs. The use of the tax-free threshold does not support the HPL's health objective, and has not encouraged product reformulation. Rather, it is the *tax-per-gram* component of the HPL's rate that has encouraged product reformulation, and the tax-free threshold mostly provides opportunity for tax avoidance in the case of syrups and concentrates. The removal of the tax-free threshold would support the objective of reducing sugar consumption, and there would no longer be a need for complicated calculations and different treatment of ready-to-drink SSBs and syrups and concentrates. Given that higher effective tax rates lead to greater consumption changes, it should also be considered whether the *tax-per-gram* rate should increase so that prices are effectively increased by at least 20%.

6 3 Concluding remarks

Prior to the introduction of the Danish Saturated Fat Tax in 2011, taxes on unhealthy foods and non-alcoholic beverages were not widely used, or were used primarily for revenue generation. The Saturated Fat Tax was abolished, but these interventions currently receive a lot of attention. While a limited number of these taxes target a broader range of unhealthy food products, more than 50 jurisdictions

have implemented some form of SSB or soft drink tax.[1] SSB and soft drinks taxes could pursue health objectives through the following channels: discouraging consumption through increased prices; incentivising product reformulation; generating revenue to be used for health programmes; and signalling to consumers and the food industry about the seriousness of the health issues caused by certain dietary risk factors. It is unclear to what extent these taxes influence health outcomes, but certain aspects of their formulation will probably enhance their potential to pursue health objectives, including: the type of tax used; the scope of possible substitute products included; the extent to which the tax increases prices; and the use of either tax-free thresholds for sugar content, or a specific tax rate levied per gram of sugar in the targeted products. For example, it is important for these taxes to target a broad range of SSBs so that undesirable substitution does not take place. Further, unless the desired channel is revenue generation, higher effective tax rates support consumption changes and product reformulation, because they have a larger deterrent effect.

The signalling effect could be supported where the effective tax rate is high, as well as where non-market-based interventions are used to complement these taxes. It is submitted that the HPL has a weak signalling effect, and the current formulation is not optimal for discouraging consumption of SSBs. While it appears that the use of tax-free thresholds in other jurisdictions has encouraged product reformulation, it is submitted that the use of such a threshold does not support the HPL's health objectives. Rather, it appears that product reformulation in South Africa has occurred as a result of the *tax-per-gram* component of the HPL's tax rate, and the use of the 4 grams per 100 millilitres has led to undesirable responses from the food industry. The removal of the tax-free threshold would not remove the incentive for manufacturers to reformulate their products. Rather, the use of a *tax-per-gram* of sugar rate, applied to both ready-to-drink SSBs and syrups and concentrates, would: more accurately target sugar consumption; and reduce the scope for manufacturers to avoid the tax, particularly in the case of syrups and concentrates.

[1] Global Food Research Programme University of North Carolina *Sugary drink taxes around the world* (2019) 1-2. As discussed above under heading "1 1 3 2 Criticisms of taxes on sugar-sweetened beverages" in Chapter 1 of this thesis, as of May 2019, 42 countries and 8 local jurisdictions within the USA had implemented taxes of soft drinks or SSBs.

However, the current lack of mandatory labelling regulations requiring the provision of nutritional information on all pre-packaged foodstuffs is an obstacle to any formulation of nutrient-based taxes. In order to target sugar consumption specifically, there is a need for development of such regulations. Such regulations would also serve to minimise administrative costs. Further, the current regulatory framework for food marketing is an obstacle for the HPL to change consumption, because it is still possible for the food industry to undermine the health objective through increased marketing, etc. While it could be possible for SSB taxes to improve health outcomes, the lack of development in the "multiple-intervention approach," along with the low effective tax rate and reluctance to earmark a larger portion of HPL revenue for health programmes, does not support the health objective.

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ANNEX

Annex A: Products subject to the Health Promotion Levy[2]

Health Promotion Levy Item	Tariff Subheading	Article Description	Rate of Health Promotion Levy
191.00	**LEVY ON SUGARY BEVERAGES**		
191.01	**18.06**	**Chocolate and other food preparations containing cocoa:**	
191.01	**1806.10**	**Cocoa powder, containing added sugar or other sweetening matter:**	
191.01.05	1806.10.05	Preparations for making beverages	2,21c/gram of the sugar content that exceeds 4g/100ml
191.02	**19.01**	**Malt extract; food preparations of flour, groats, meal, starch or mal extract, not containing cocoa or containing less than 40 per cent by mass of cocoa calculated on a totally defatted basis, not elsewhere specified or included; food preparations of goods of headings 04.01 to 04.04, not containing cocoa or containing less than 5 per cent by mass of cocoa calculated on a totally defatted basis, not elsewhere specified or included:**	
191.02	**1901.90**	**Other:**	
191.02.05	1901.90.15	Preparations for making beverages (excluding those of tariff subheading 1901.90.20)	2,21c/gram of the sugar content that exceeds 4g/100ml
191.05	**21.06**	**Food preparations not elsewhere specified or included:**	
191.05	**2106.90**	**Other:**	
191.05.05	2106.90.20	Syrups and other concentrates or preparations for making beverages, not having a basis of fruit juice (excluding those of tariff subheading 2106.90.69)	2,21c/gram of the sugar content that exceeds 4g/100ml
191.05.10	2106.90.22	Syrups and other concentrates or preparations for making beverages, with a basis of fruit juice (excluding those of tariff subheading 2106.90.69)	2,21c/gram of the sugar content that exceeds 4g/100ml
191.05.15	2106.90.69	Drinking straws, containing flavouring preparations	2,21c/gram of the sugar content that exceeds 4g/100ml
191.07	**22.02**	**Waters, including mineral waters and aerated**	

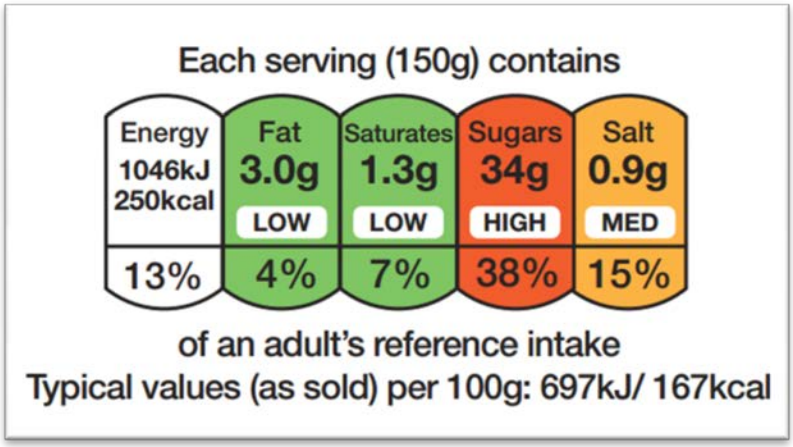
[2] Part 7A of Schedule No.1 of the Customs and Excise Act.

		waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages (excluding fruit or vegetable juices of heading 20.09)	
191.07	**2202.10**	**Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured:**	
191.07.05	2202.10.10	In sealed containers holding 2,5li or less (excluding those in collapsible plastic tubes)	2,21c/gram of the sugar content that exceeds 4g/100ml
191.07.10	2202.10.90	Other	2,21c/gram of the sugar content that exceeds 4g/100ml
191.07	**2202.9**	**Other:**	
191.07	**2202.91**	**Non-alcoholic beer:**	
191.07.15	2202.91.20	In sealed containers holding 2,5li or less (excluding those in collapsible plastic tubes and those with a basis of milk)	2,21c/gram of the sugar content that exceeds 4g/100ml
191.07.20	2202.91.90	Other	2,21c/gram of the sugar content that exceeds 4g/100ml
191.07	**2202.99**	**Other:**	
191.07.25	2202.99.20	In sealed containers holding 2,5li or less (excluding those in collapsible plastic tubes and those with a basis of milk)	2,21c/gram of the sugar content that exceeds 4g/100ml
191.07.90	2202.99.90	Other	2,21c/gram of the sugar content that exceeds 4g/100ml

Annex B: Nordic Keyhole Logo for front-of-package food labels[3]

[3] Van der Bend & Lissner (2019) *Nutrients* 6.

Annex C: Example of the "Traffic light" labelling in the United Kingdom[4]



Annex D: Example of the "Nutri-Score" labelling system in France[5]

Annex E: Minimum mandatory nutritional information[6]

	Per 100 g/ml	Per single serving
Energy (kJ)		
Protein (g)		
Glycaemic Carbohydrate (g) of which total sugar (g)		
Total fat (g)		
of which Saturated fat (g)		
*		
**		
**		
***		
Dietary fibre# (g)		
Total Sodium (mg)		

[4] British Nutrition Foundation "Healthy Living / Helping you eat well / Looking at labels") *British Nutrition Foundation*.
[5] Van der Bend & Lissner (2019) *Nutrients* 7.
[6] Annex 2 of GN R 146 in *GG* 32975 of 01-03-2010.

• Any other nutrient or food component to be declared in accordance with these Regulations • in alphabetical order, in the order: vitamins, minerals, others.	Indicated in grams (g), milligrams (mg), micrograms (mcg/µg), or appropriate unit of measurement)	Indicated in grams (g), milligrams (mg), micrograms (mcg/µg), or appropriate unit of measurement)

"Nutrient reference values (NRVs) for individuals 4 years and older expressed per single serving is optional
Place the statements required by regulation 50(4) as appropriate here
*place to insert trans fat
**place for a subgroup nutrient, such as monounsaturated fat, polyunsaturated fat, omega-3 fatty acids et cetera
***place to insert cholesterol when cholesterol information is given
Indicate method of analysis used to determine dietary fibre"

Annex F: Soda Tax rates in Denmark[7]

Tax rate change	Tax rate
1 January 1984	DKK 1,60/l
1 July 1991	DKK 0,80/l
1 January 1998	DKK 1,00/l
1 January 2001	DKK 1,65/l
1 October 2003	DKK 1,15/l

Annex G: Denmark Chocolate and Confectionery Tax products and rates[8]

Chapter 1: chocolate and sugar confectionery products	Rate
Chocolate and the like, cocoa paste, cocoa butter, and any other cocoa related goods	DKK 25,97/kg for products whose added sugar content exceeds 0,5g/100g; and DKK 22,08 for products whose added sugar content is less than 0,5g/100g
Liquorice extract, liquorice, and liquorice of any kind such as liquorice root powder, and mixtures of ammonium and liquorice root and the like	
Products partially or completely consisting of almonds, nuts, any other type of seeds, or products containing these	
Confectionary, candies, sugar-coated goods, marshmallows, fondant, sugared cereals and the like with added essence or colour and any other sugar confectionary	
Chewing gum	
Candied fruits and fruit peel and other candied goods except from peel of citrus fruits	
Succade, jam and similar products when shaped like sheeds, rods, shapes and the like	
Wafers which are coated in or in any other way in contact with chocolate, marshmallows, or products partially or completely	

[7] Skatteministeriet "Chapter 4. Sodavand" *Skatteministeriet.*
[8] European Commission "Taxes in Europe Database v3- Indirect taxes- Other Indirect" (03-04-2018) *European Commission* <http://ec.europa.eu/taxation_customs/tedb/taxDetails.html?id=152/1514764800> (accessed 28-06-2018).

consisting of almonds, nuts, or any other type of seeds- with certain exceptions	
Cakes, biscuits, and the like partially consisting of marshmallows, when baked good does not make up at least two thirds of the goods' volume	
Any other goods which can be considered imitations or substitutes for any of the above mentioned goods when looking at the quality and the use and the way they are marketed	
Chapter 2: raw materials such as almonds, nuts, grains, etc.	
Unprocessed acacia nuts, unprocessed almonds, unprocessed apricot and peach kernels, and unprocessed cashew nuts	DKK 14,57/kg
Processed acacia nuts, processed almonds, processed apricot and peach kerns, and processed cashew nuts	DKK 17,44/kg
Processed and unprocessed Brazil nuts, processed and unprocessed walnuts, pistachio nuts, pecan nuts, unprocessed hazelnuts, cocoa shells, cocoa waste, residues from the extraction of oils from dutiable nuts and kernels, unless the good is not suitable for human consumption	DKK 9,71/kg
Processed hazelnuts	DKK 11,65/kg
Almonds in shell	DKK 7,33/kg
Hazelnuts in shell and peanuts without shell	DKK 4,87/kg
Processed peanuts	DKK 5,8/kg
Processed and unprocessed coconuts and peanuts in shell	DKK 2,9/kg
Chapter 3: imported goods containing taxable components, subject to the financial levy	
Coconut	DKK 2,9/kg
Processed peanuts	DKK 5,8/kg
Other nuts and seeds	DKK 11,04/kg
Other taxable components	DKK 25,97/kg for products whose added sugar content exceeds 0,5g/100g; and DKK 22,08/kg for products whose added sugar content is less than 0,5g/100g.

Annex H: Standard rates for meat products in terms of the Saturated Fat Tax[9]

Product	Saturated fat/100g	Tax rate
Meat		
Cattle	5,2g	DKK 0,83/kg
Pig	6,5g	DKK 1,04/kg
Sheep and goats	6g	DKK 0,96/kg
Horses, mules, donkeys	4g	DKK 0,64/kg

[9] Annex 1 of the Saturated Fat Tax Act.

Chickens	2,5g	DKK 0,40/kg
Ducks and geese	12,1g	DKK 1,94/kg
Turkeys	0g	DKK 0,00/kg
Rabbits and hares	0g	DKK 0,00/kg
Other wildlife (animals)	1,6g	DKK 0,26/kg
Other meat	4,2g	DKK 0,7/kg

Annex I: Saturated Fat Tax Foods[10]

Saturated Fat Tax Taxable Food:	**Customs Tariff Heading:**
Dairy products under headings 0401-0406:	0401: "Milk and cream, not concentrated nor containing added sugar or other sweetening matter"
	0402: "Milk and cream, concentrated or containing added sugar or other sweetening matter"
	0403: "Buttermilk, curdled milk and cream, yoghurt, kephir and other fermented of acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruit, nuts or cocoa"
	0404: "Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included"
	0405: "Butter and other fats and oils derived from milk; dairy spreads"
	0406: "Cheese and curd"
Animal fat under headings 1501-1504 and 1516, rendered or otherwise extracted:	1501: "Pig fat (including lard) and poultry fat, other than that of heading 0209 or 1503"
	1502: "Fats of bovine animals, sheep or goats, other than those of heading 1503"
	1503: "Lard stearin, lard oil, oleostearin, oleo-oil and tallow oil, not emulsified or mixed or otherwise prepared"
	1504: "Fats and oils, and other fractions, of fish or marine mammals, whether or not refined, but not chemically modified"
	1516: "Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared"
Food oils and fats under headings 1507-1516:	1507: "Soya-bean oil and its fractions, whether or not refined, but not chemically modified"
	1508: "Groundnut oil and its fractions, whether or not refined, but not chemically modified"
	1509: "Olive oil and its fractions, whether or not refined, but not chemically modified"
	1510: "Other oils and their fractions, obtained solely from olives, whether or not refined, but not chemically modified, including

[10] *Lov nr. 247 af 30.03.2011 om afgift af mættet fedt i visse fødevarer (fedtafgiftsloven)* § 1; Chapters 4, 15 & 21 of Commission Regulation (EU) No 1101/2014 of the European Council of 16 October 2014 amending Annex I to Council Regulation (EEC) No. 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff *Official Journal of the European Union* L312/1.

	blends of these oils or fractions with oils or fractions of heading 1509”
	1511: “Palm oil and its fractions, whether or not refined, but not chemically modified”
	1512: “Sunflower-seed, safflower or cotton-seed oil and fractions thereof, whether or not refined, but not chemically modified”
	1513: “Coconut (copra), palm kernel or babassu oil and fractions thereof, whether or not refined, but not chemically modified”
	1514: “Rape, colza or mustard oil and fractions thereof, whether or not refined, but not chemically modified”
	1515: “Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified”
	1516: “Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared
Margarine and other food of heading 1517:	1517: “Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading 1516”
Lubricating mixtures of heading 2106:	2106: “Food preparations not elsewhere specified or included